United States Court of Appeals
for the
District of Columbia Circuit

TRANSCRIPT OF RECORD

BRIEF FOR APPELLANTS.
AND JOINT APPENDIX

United States Court of Appeals for the District of Columbia.

Appeal No. 9349.

623

POLAROID CORPORATION AND ROBERT A. SMITH,
Appellants,

v.

Tom C. Clark
~~JAMES E. MARKHAM~~ **AS ALIEN PROPERTY CUSTODIAN**
AND
CASPAR W. OOMS AS COMMISSIONER OF PATENTS,
Appellees.

APPEAL FROM THE JUDGMENT OF THE DISTRICT COURT OF THE UNITED STATES FOR THE DISTRICT OF COLUMBIA.

CECIL A. BEASLEY,
American Security Building, Washington, D. C.
Counsel for Appellants.

DONALD L. BROWN,
CHARLES MIKULKA,
Of Counsel.

L. H. LANE COMPANY, LAW PRINTERS, 221 HIGH STREET, BOSTON, MASS.

United States Court of Appeals
for the District of Columbia
FILED [illegible] 1946
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IN THE

UNITED STATES COURT OF APPEALS

FOR THE DISTRICT OF COLUMBIA.

No. 9349.

POLAROID CORPORATION AND ROBERT A. SMITH,
APPELLANTS,
v.
JAMES E. MARKHAM AS ALIEN PROPERTY CUSTODIAN
AND
CASPAR W. OOMS, AS COMMISSIONER OF PATENTS,
APPELLEES.

APPEAL FROM THE DISTRICT COURT OF THE UNITED STATES.

BRIEF FOR APPELLANTS.

JURISDICTIONAL STATEMENT.

This is an appeal from a final judgment (App. 100) of the District Court of the United States for the District of Columbia dismissing the complaint (App. 3) in an action brought in the District Court under the provisions of Section 4915, Revised Statutes of the United States (U.S.C. Tit. 35, Sec. 63), as amended by the Act of August 5, 1939, 53 Stat. 1212. An appeal from the final judgment of the District Court lies to this Court (31 Stat. 1225, ch. 854, sec. 226).

STATEMENT OF THE CASE.

This is a second appeal in this case. The first appeal (App. 20) was taken from a final judgment (App. 19) of the District Court. It was heard on its merits on May 17, 1945, and decided on September 24, 1945 (App. 88). In a per curiam opinion, this Court set aside the judgment of the District Court and remanded the case "for a fuller compliance with the requirements of FRCP Rule 52(a) that the Court 'find the facts specially and state separately its conclusions of law thereon' ". The case was subsequently reconsidered by the District Court, a new Findings of Fact and Conclusions of Law (App. 90-99) filed, and a new Judgment (App. 100) dismissing the Complaint entered. It is from this second Judgment that the present appeal is taken.

This suit is an action under R.S. 4915 to obtain a patent, and arises out of an interference in the Patent Office.

On December 30, 1937, Hans A. Sauer, a resident of Dresden, Germany, filed an application for Letters Patent of the United States for a Polarizing Structure, Serial No. 182,497, which application eventuated on December 26, 1939 in Letters Patent No. 2,185,018 (App. 84-86), said patent containing one claim. In the oath forming a part of the Sauer application, the applicant set out a number of applications filed in foreign countries, including an application for a Gebrauchsmuster in Germany, filed December 31, 1936, and registered March 10, 1938 as No. 1,431,367. Letters Patent No. 2,185,018 of Sauer was subsequently duly vested in defendant-appellee James E. Markham (substituted for Leo T. Crowley) as the Alien Property Custodian. For convenience, the parties in interest in this patent will be referred to hereinafter as "Sauer".

On June 26, 1940, plaintiff-appellant Robert A. Smith filed in the United States Patent Office an application for Letters Patent for Light Polarizing Material for Use in Glare

Elimination, Serial No. 342,467 (Plff's Exh. 2), and by proper instrument in writing Smith assigned his entire right, title and interest to his application for patent to the plaintiff-appellant Polaroid Corporation. For convenience, the parties in interest to this application will be referred to hereinafter as "Smith".

Smith's application contained as one of its claims the claim of the Sauer patent, and at the time the application was filed, Smith requested the Patent Office to declare an interference between his application and the Sauer patent, which interference was declared by the defendant-appellee Commissioner of Patents, on September 16, 1940, and identified as Interference No. 78,603. This interference was terminated by a decision of the Primary Examiner, holding that the claim was not patentable to Smith, pursuant to which a rejection of the claim was entered in the Smith application. On appeal to the Board of Appeals, the action of the Primary Examiner rejecting the claim was reversed. A new interference, No. 79,902, was instituted between the same parties involving the same issue. Testimony was taken by Smith and included testimony as to the inoperativeness of the disclosure of the Sauer patent. No testimony was taken by the party Sauer. Both parties filed briefs, but Sauer was not represented at final hearing.

On April 13, 1943, the Board of Interference Examiners of the Patent Office awarded priority of invention of the subject matter in issue to Sauer. On April 29, 1943, the party Smith filed a petition for reconsideration of the decision rendered by the Board of Interference Examiners. On May 13, 1943 the Board of Interference Examiners adhered to their decision of April 13, 1943.

The Board of Interference Examiners held:

1. That Smith had conceived the invention in issue on April 13, 1936 (App. 118), but failed to prove a reduction to practice of the invention in issue prior to his filing date (App. 118).

2. That they would not consider the question of the inoperativeness of the Sauer patent despite the testimony on behalf of Smith on this question, and despite arguments made by Smith in his brief and at final hearing, for the reason that Smith did not bring a motion under Rule 122 during the motion period of the predecessor interference (App. 118).

Suit was brought under R. S. 4915 (App. 3-7) and the cause came on for final hearing before the Honorable Daniel W. O'Donoghue, Asociate Justice, on March 13, 1944. By stipulation of counsel (App. 11, 12), the Smith record (Plffs' Exh. 3) and the exhibits (Plffs' Exh. 4) in Interference No. 79,902, the only testimony taken in the interference, were admitted in evidence, and, in addition, plaintiffs called witnesses Lewis W. Chubb, Jr., Robert P. Blake and Robert A. Smith, all of whom testified in Interference No. 79,902 in the Patent Office. On the question of the reduction to practice of the count in issue, the principal witness for the party Smith before the Patent Office was Lewis W. Chubb, Jr., Smith's son-in-law and now an employee of Polaroid Corporation, who, from July, 1932 to March, 1938, worked under the direction of Smith as an employee of Polarized Lights, Inc. (App. 24, 25). In the court below, Chubb testified to the construction and testing prior to Sauer's filing date of structures which corresponded in every material respect to the construction held by the Board of Interference Examiners to constitute a conception of the invention (App. 68-76), supplementing general testimony of the same character given before the Patent Office.

Robert P. Blake, a Research Engineer, employed by Polaroid Corporation or its predecessor companies since 1933 and almost continuously engaged during that time in the development of processes connected with various types of polarizers (App. 41), testified before the District Court that the Sauer specification was inoperative as to the subject matter of the claim in issue (App. 79-83). This testimony of Blake's supplemented similar testimony before the Patent Office.

The trial court held in the first instance (App. 18, 19) that Smith had failed to prove a reduction to practice prior to his filing date of June 26, 1940 and that the Sauer specification was inoperative as to the subject matter involved in the claim in issue. After the first judgment was set aside and the case remanded for a further Statement of Facts and Conclusions of Law, the court below, despite a request for reconsideration on the merits by appellants, repeated the substance of its original holding. However, the new judgment (App. 100) from which this appeal was taken was supported by more detailed Findings of Fact (App. 90-99).

During the pendency of the first appeal, appellee James E. Markham, Alien Property Custodian, by motion filed November 10, 1944, moved this Court to dismiss the appeal and to vacate the judgment in his favor below and for an order directing the District Court to dismiss the complaint for lack of jurisdiction. This Court denied the motion on February 19, 1945 holding that the District Court had jurisdiction to entertain the suit.

STATUTES.

R.S. § 4888; March 3, 1915, c. 94, § 1, 38 Stat. 958; May 23, 1930, c. 312, § 2, 46 Stat. 376; Tit. 35, § 33 U.S.C.

Before any inventor or discoverer shall receive a patent for his invention or discovery he shall make application therefor, in writing, to the Commissioner of Patents, and shall file in the Patent Office a written description of the same, and of the manner and process of making, constructing, compounding, and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art or science to which it appertains, or with which it is most nearly connected, to make, construct, compound, and use the same; and in case of a machine, he shall explain the principle thereof, and the best mode in which he has contemplated applying that principle, so as to distinguish it from other inventions; and he shall particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention or discovery. The specification and claim shall be signed by the inventor. No plant patent shall be declared invalid on the ground of noncompliance with this section if the description is made as complete as is reasonably possible.

STATEMENT OF POINTS.

The plaintiffs state that the points upon which they intend to rely in the appeal in this action are as follows:

1. The Court erred in dismissing plaintiffs' Complaint.

2. The Court erred in holding that Hans Sauer, whose United States Letters Patent No. 2,185,018 issued on December 26, 1939, is the true, original and first inventor of the invention forming the subject matter of the claim of said Patent No. 2,185,018.

3. The Court erred in failing to hold that the plaintiff, Robert A. Smith, is the true, original and first inventor of the invention forming the subject matter of the claim of said Sauer Patent No. 2,185,018.

4. The Court erred in holding that the Gebrauchsmuster, registered on March 10, 1938, under No. 1,431,367, by Zeiss Ikon Gesellschaft of Dresden, Germany, in Germany, constitutes a reduction to practice by Sauer of the invention of the count in issue.

5. The Court erred in giving weight to the perfection of the lamination or any part thereof in holding that "the five-ply laminations made on April 27, 1936 *** are not a sufficient embodiment of the invention as defined in the count in issue, since these laminations used the polarizing film made by Lewis W. Chubb, Jr., on April 17, 1936, and this film was admitted by Chubb to be far from perfect".

6. The Court erred in holding that the "mere making of the five-ply laminations relied upon by the plaintiffs does not constitute a reduction to practice" and in predicating such holding on the reason that "the laminations must be proved to have been adequately tested in their intended application of eliminating headlight glare and to have had practical utility in eliminating headlight glare".

7. The Court erred in holding that the aforesaid five-ply laminations and the other five-ply laminations made by Chubb on and between April 27, 1936 and December 30, 1937 "were of no use in the elimination of headlight glare, since the heat of the headlights would in a short time injure the polarizer in the laminations placed over the headlights".

8. The Court erred in holding that the testimony of Lewis W. Chubb, Jr., Fred Pine, and Louis Paggi as to road tests "is insufficient to establish adequate and successful testing in 1936 or 1937 of the five-ply laminations in eliminating headlight glare" and in holding that the alleged insufficiency of the testimony is due to a failure to "show the nature of the road tests or the conditions under which they were carried out".

9. The Court erred in holding that the plaintiffs "failed to prove reduction to practice in 1936 or 1937, or at any time prior to the filing of Smith's application on June 26, 1940, of the invention in the count in issue by their proofs as to road tests carried on during these years".

10. The Court erred in holding that the laboratory testing of Lewis W. Chubb, Jr., Robert A. Smith, and Robert P. Blake was inadequate to reduce the invention to practice and in giving as the reason for this holding that such testing does not "establish the practical utility in eliminating headlight glare of a 'polarizing portion of the foil merging with decreasing polarizing effect into the surrounding non-polarizing area of the foil', as required by the invention in the count in issue".

11. The Court erred in holding that for a reduction to practice of the invention in issue it was necessary to have the aforesaid five-ply laminations function successfully not only as visors but also as headlight screens.

12. The Court erred in failing to hold that the invention in issue was reduced to practice by the mere making of the aforesaid five-ply laminations and the testing of the polarizing properties there of in the laboratory.

13. The Court erred in holding that there was any burden upon plaintiffs to satisfactorily explain "why if they had successfully reduced the invention in issue to practice as early as April 27, 1936, and many times thereafter in 1936 and 1937, as claimed by them, they failed to file an application for patent for the invention until June 26, 1940, three or four years after the alleged reductions to practice and only after the grant of a patent to Sauer" and in holding that this "long and unexplained delay in plaintiffs' filing an application for patent is a circumstance indicating that there was no reduction to practice in 1936 or 1937."

14. The Court erred in holding that "the disclosure in Sauer's domestic application of December 30, 1937 is operative" and in holding that said disclosure "is sufficient as evidence of conception and a constructive reduction to practice of the invention in the count in issue".

15. The Court, while properly finding that "the novel feature embodied in the structure of the claim here in issue resides in the provision of a gradual merger between the polarizing and non-polarizing areas of the foil", erroneously held that "Sauer achieved this area of gradual merger by the gradual scatter and disorientation of the crystals adjacent to the marginal portions of the foil so as to merge the polarizing area gradually into the non-polarizing area".

16. The Court erred in holding that Blake's testimony and the testimony of Chubb and Smith failed to "prove

that Sauer's disclosure is inoperative'' and in finding that ''such testimony does not prove that a gradual scatter and disorientation of the polarizing crystals disclosed by Sauer could not be achieved by one skilled in the art''.

17. The Court erred in holding that the evidence adduced by the plaintiffs does not establish that opacity ''is a necessary result of the gradual scatter and disorientation of polarizing crystals disclosed by Sauer''.

18. The Court erred in failing to hold Sauer's specification inoperative in view of its finding that Blake's testimony shows ''that disorientation will allow less transmission of light than orientation and that the amount of light transmitted will depend on the degree of disorientation and density of the crystals'' and such further finding as ''There is nothing in Sauer's disclosure that requires the crystals to be disoriented in such a degree and to overlie one another in sufficient density to create opacity.''

19. The Court erred in failing to hold that the Sauer specification was insufficient both as evidence of conception and as a reduction to practice of the invention in issue and that said specifications under no circumstances entitled Sauer to an award of priority.

SUMMARY OF ARGUMENT.

This R. S. 4915 proceeding raises as its principal issue priority of invention with respect to a polarizing structure defined in the single claim of the Sauer patent. The invention construed in the light of the Sauer specification is a simple invention whose advantages and utility are evident from its construction.

Smith has proven beyond dispute a making of a device embodying all of the construction called for by the claim in issue, a testing of that device for its polarizing properties and use of that device as an automotive visor, all of this being done prior to the earliest date claimed by or available to Sauer. This activity clearly reduced the invention to practice and the court erred in failing to so find.

A principal error committed by the court below in finding adversely for Smith on the question of reduction to practice was in requiring of Smith a reduction to practice of more than the invention disclosed and claimed by Sauer.

A finding adverse to Smith on the question of actual reduction to practice squarely presents as an issue the sufficiency of the Sauer disclosure as a constructive reduction to practice. Sauer's specification is insufficient in its disclosure of the means for achieving the inventive concept here involved and is inoperative in what it does suggest for obtaining the desired result.

Accordingly Smith must prevail.

1. Because he actually reduced the invention to practice prior to the earliest date claimed by Sauer; and/or

2. Because Sauer's specification is insufficient and inoperative and does not entitle him to a constructive reduction to practice.

ARGUMENT.

THE INVENTION IN ISSUE.

The invention here in issue relates to a polarizing structure and is defined in the single claim of the Sauer patent, which reads as follows:

> "A polarizing structure comprising a base of transparent material, a foil of transparent material applied to one surface of said base and covering the entire area of the same, a portion of said foil located within the outline of the same being adapted to polarize light passing therethrough, the polarizing portion of the foil merging with decreasing polarizing effect into the surrounding non-polarizing area of the foil."

The Patent Office, in allowing the claim to Sauer (Pl. Ex. 1, Amend. B) and in its decisions in the interference, found the area of gradual merger to be the feature which rendered the claim patentable, holding, for example, in the interference "that the count in issue distinguishes over the prior art because it is restricted to a 'polarizing foil or screen whose polarizing effect decreases gradually at the margin where the latter merges into a clear non-polarizing portion of the foil'." (App. 122)

Likewise, the court below found as a fact that "The novel feature embodied in the structure of the claim here in issue resides in the provision of a gradual merger between the polarizing and non-polarizing areas of the foil." (App. 97, par. 30)

It is to be noted that the claim in issue recites no function for the area of gradual merger, and that the Sauer specification is also silent as to any specific advantage to be realized from, or any particular function to be performed by, the area of gradual merger. Similarly, the claim merely calls for a polarizing structure without limiting the structure to any particular use. The Sauer specification speaks generally of using the polarizing structure on windows or windshields of vehicles and the like and Sauer (App. 85, col. 2, lines 22-28) also refers to a conventional use of a polarizing structure of the character defined, for example, in the windshields or windows of automobiles. Accordingly, from the Sauer specification it must be concluded:

1. That the mere disclosure of an area of gradual merger is per se sufficient to make obvious to one skilled in the art the advantages which are realized from such a structure; and

2. That the polarizing structure called for by the count in issue is one which has well known uses and that the practicability thereof for such uses is evident from its structure per se.

To conclude otherwise is to give the invention a construction which is not supported by the disclosure of the Sauer specification.

SMITH REDUCED THE INVENTION TO PRACTICE LONG PRIOR TO THE EARLIEST DATE AVAILABLE TO SAUER.

Smith Was First to Conceive of the Invention.

Smith conceived of the invention in issue as early as April 13, 1936. This was the holding of the Board of Interference Examiners in its decision of April 13, 1943, and was also found as a fact by the lower court (App. 93, par. 11). The conception was evidenced by two sketches (App. 59, 60) made by Smith in the presence of Chubb on April 13, 1936 and described fully by Smith to Chubb at the time they were made (App. 34-38, Qs. 156-181).

The disclosure which constituted a conception of the invention was of a visor formed from a polarizing sheet of tapering thickness and specifically of a thickness varying from .003 inch to .0015 inch. Smith proposed (App. 38, Q. 181) to incorporate the polarizing element in a windshield by embedding said element in a sheet of transparent plastic, and then laminating the plastic between two transparent plates as shown in an earlier sketch of Smith's (App. 58).

On April 13, 1936, the same day on which Smith made the above disclosures to him, Chubb devised (App. 37, Q. 173) and recorded in his notes (App. 61) a method of producing the polarizing film of varying thickness by extrusion.

Smith, through Chubb, Prior to Sauer's Earliest Date Made Polarizing Structures Embodying the Invention, Tested Said Structures, and Used Them as Windshield Visors.

Prior to April 20, 1936, and probably on April 17, 1936, Chubb made by extrusion a sheet of polarizing film having a tapering thickness (App. 40, Qs. 203-208). The dimensions of the sheet were recorded in Chubb's notebook under the date of April 17, 1936 as varying in thickness from .003 inch to .00175 inch (App. 64). It is noted that this polarizing film corresponds in every respect to the polarizing film described by Smith on April 13, 1936, except that the smaller thickness is .00175 inch instead of .0015 inch.

In the Patent Office Chubb testified that many laminations were made from the polarizing films produced by him and that some were mounted on plastic and some on glass supports, and that they comprised polarizing and non-polarizing areas (App. 30, Q. 100). Smith testified in the Patent Office that he and Chubb made many laminations from the polarizing sheets obtained during the period commencing in March, 1936 and until the summer of 1937, and that the laminations were usually tested in road tests shortly after they were produced (App. 56, 57, Qs. 128-133).

In the District Court, testifying from his notes to the formation of specific laminations, Chubb stated that on April 27, 1936, he made a five-ply lamination using a portion 8½ inches square of the polarizing film of tapering thickness made by him on April 17 (App. 69-71, Qs. 6-31). This portion of the polarizing film was encased (App. 70, Q. 15) within a relatively soft, transparent adhesive plastic (App. 69, Q. 13) by pressing two sheets of the adhesive into engagement with opposite faces of the polarizer to make them "perhaps three-quarters of their original thickness and proportionately larger in area" (App. 70, Q. 23). An increase in area corresponding to a three-quarters decrease in thickness necessarily increased the area from 8½ inches square to over 9 inches square. The unit thus formed was thereafter laminated between two harder, transparent plastic sheets which were 9 inches square (App. 70, 71, Qs. 25-30) and when so laminated covered the entire surface area of both said harder, transparent plastic sheets.

The polarizing structure formed in this manner embodied every feature of the invention as defined in the count in issue. Either of the transparent outer laminations provided "a base of transparent material" as required by the count. The portion of polarizing film included within the transparent adhesive formed with the latter "a foil of transparent material applied to one surface of said base and covering the entire area of the same, a portion of said foil located within the outline of the same being adapted to polarize light passing therethrough" and because of its tapering thickness, the polarizing portion of the foil merged "with decreasing polarizing effect into the surrounding non-polarizing area of the foil".

The court below, in effect, held that laminations so constructed were made by Chubb from April 30, 1936 to approximately the end of 1937, finding that "each of these laminations comprised a transparent base and a transparent foil, said foil including within its borders a sheet of the polarized film of tapering thickness (App. 94, Par. 13).

Many other laminations of this same construction were made by Chubb from April 1936 until approximately the end of 1937 (App. 71, Qs. 31-32). The court below so found in holding that "these laminations and others like them were made by Chubb from April 1936 to approximately the end of 1937" (App. 94, Par. 13). Chubb also testified that neither the soft adhesive layers nor the hard outer layers of the five-ply lamination affected the polarizing properties of the film (App. 72, Qs. 36, 37), and this, too, was found as a fact by the court below. The latter held that "Neither the soft adhesive layers which encased the polarizing film nor the outer layers of the five-ply laminations affected the polarizing properties of the polarizing film". Chubb additionally testified that each lamination was examined by him under polarized light after its formation to determine its polarizing properties (App. 72, Qs. 38, 39). This, too, was found by the court below (App. 95, par. 22).

Chubb also testified that these laminations were used for viewing devices and for headlight polarizers (App. 71, Q. 33) in road tests run in the period from April, 1936 to December, 1937 (App. 72, Qs. 40, 41). The court in its holdings (App. 95, Pars. 19 and 20) conceded that the testimony established a use of these laminations in road tests as visors.

Smith corroborated the testimony of Chubb with regard to the construction of the five-ply laminations formed from the polarizing sheets of tapering thickness (App. 76, 77, Qs. 7-12). Smith testified further that the five-play laminations thus formed were used as shielding visors and as headlight screens in road tests carried out under his supervision (App. 77, 78, Qs. 13-21).

The credibility of the witnesses Chubb and Smith has been in no respect impeached. Their testimony has not been contradicted, and, moreover, is supported by documentary evidence, none of which has been discredited. It forms a continuous picture from Smith's conception of April 13, 1936, to Chubb's construction under Smith's direction of a polarizing structure embodying every feature of the invention on April 27, 1936. Chubb had previously made and used (App. 29, 30, Qs. 61-71) visors comprising a polarizing element embedded in a transparent plastic matrix. The only novel feature embodied in the structure made on April 27, 1936, was the gradual merger obtained between the polarizing and non-polarizing area of the foil as a result of the tapering thickness of the polarizing element. Chubb knew the structure successfully embodied this feature since it incorporated the polarizer of tapering thickness.

The foregoing uncontradicted testimony of Chubb and Smith therefore clearly establishes that under Smith's direction:

1. Chubb made, on or about April 27, 1936, and many times thereafter, polarizing structures satisfying all of the limitations of the claim in issue;

2. Chubb tested these laminations for their polarizing properties and established to his own satisfaction that they polarized light; and

3. Chubb was sufficiently satisfied with the results of

these laboratory tests to use some of these laminations in road tests as visors.

The Court's Failure to Find That the Foregoing Constituted a Reduction to Practice is Clear Error.

Before considering the specific facts relevant to this point, it may be well to review briefly the applicable law. An interference is a proceeding for the purpose of establishing priority of invention and "the first and original inventor, generally speaking, is *prima facie* the one who first reduces an invention to practice," (Walker on Patents, Deller's Edition, Vol. 2, page 920). Reduction to practice may be actual, as when an inventor embodies the device of the invention in practicable, physical form, or it may be constructive, as when the inventor describes an invention in a United States patent application in such detail that one skilled in the art may reproduce the invention. These are the only two ways in which an inventor may, within the law, complete an invention.

On the question of what constitutes actual reduction to practice, the law is clear. The inventor must make a structure embodying every feature of the invention and must satisfy himself of the practicability of that structure. Under this rule, what more than a mere construction of a device embodying all the structure of an invention is necessary to establish a reduction to practice becomes a question of fact to be determined in the light of the complexity and intended uses of the invention. As a result, it has been held in a large number of cases that the mere making of a structure embodying all of the features of an invention is sufficient without further practical demonstration to establish a reduction to practice.[1]

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[1] *Loomis* v. *Hauser,* 19 App. D. C. 401; 1902 C. D. 530; (App. D. C. 1902)
Couch v. *Barnett,* 23 App. D. C. 446; 1904 C. D. 650; (App. D. C. 1904)
Schartow v. *Schleicher,* 35 App. D. C. 347; 1910 C. D. 402 (App. D. C. 1910)

Still another group of cases has held that although the mere making of the structure of the invention was not enough, its testing in the laboratory was adequate for a reduction to practice.[2]

A further group of cases has required for a reduction to practice a testing of the invention under actual service conditions.[3]

Gaisman v. *Gillette,* 36 App. D. C. 440; 1911 C. D. 319 (App. D. C. 1911)
Hoenig v. *Parker,* 50 App. D. C. 21; 1920 C. D. 234; 267 Fed. Rep. 323 (App. D. C. 1920)
Solomon v. *Rousso,* 50 App. D. C. 333; 1921 C. D. 190; 271 Fed. Rep. 799 (App. D. C. 1921)
McGrath v. *Burke,* 56 App. D. C. 220; 1926 C. D. 226; 12 Fed. Rep. (2nd) 161 (App. D. C. 1926)
Sachs v. *Wadsworth,* 18 CCPA 1284; 1931 C. D. 515; 48 Fed. Rep. (2nd) 928
Wadsworth v. *Blank,* 25 CCPA 792; 1938 C. D. 206; 92 Fed. Rep. (2nd) 981
Hoza v. *Colby,* 25 CCPA 1206; 1938 C. D. 620; 97 Fed. Rep. (2nd) 89

[2] *Wyman* v. *Donnelly,* 21 App. D. C. 81; 1903 C. D. 556 (App. D. C. 1903)
Rolfe v. *Hoffman,* 26 App. D. C. 336; 1906 C. D. 588 (App. D. C. 1905)
Preston et al v. *White,* 25 CCPA 1219; 1938 C. D. 633; 97 Fed. Rep. (2nd) 160
Corona Cord Tire Co. v. *Dovan Chemical Corp.,* 276 U.S. 358; 1928 C. D. 253
St. John et al v. *Schulze,* 18 CCPA 1050; 1931 C. D. 228; 47 Fed. Rep. (2nd) 798
Harrison et al v. *Caldwell,* 17 CCPA 1024; 1930 C. D. 419; 39 Fed. Rep. (2nd) 704
Wietzel v. *Lacy,* 17 CCPA 943, 39 F. (2nd) 672

[3] *Paul* v. *Hess,* 24 App. D. C. 462; 1905 C. D. 610 (App. D. C. 1905)
Gallagher v. *Hien,* 25 App. D. C. 77; 1905 C. D. 624 (App. D. C. 1905)
O'Connell v. *Schmidt,* 27 App. D. C. 77; 1906 C. D. 662 (App. D. C. 1906)
Daggett v. *Kaufmann,* 33 App. D. C. 450; 1909 C. D. 444 (App. D. C. 1909)
Hadley v. *Ellis,* 49 App. D. C. 84; 1919 C. D. 225; 258 Fed. Rep. 984 (App. D. C. 1919)

Thus, the question of what, if anything, beyond a physical construction of a device embodying all of the features of the invention must be established by Smith for actual reduction to practice depends on the complexity of the invention here involved. Furthermore, any question as to the invention here involved must be resolved by reference to the Sauer specification for it is well settled that a count in an interference should be construed in the light of the specification in which it originates.

If we examine the Sauer disclosure with respect to the patentable feature of the invention, we find that Sauer is able to describe not only the construction of this feature, but also the way of achieving it in but a portion of a sentence (App. 86, col. 2, lines 17-25). Neither the claim nor the specification recites any particular utility for the merging area of the structure and, moreover, the claim merely requires a structure that polarizes.

In view of this, the conclusion is inescapable that the invention herein involved is extremely simple and that it is an invention of the type "whose making amounted to a demonstration of utility and constituted reduction to practice". *Gaisman* v. *Gillette,* 36 App. D. C. 440. (See also other cases cited under footnote 1, pages 16-18.) Chubb made a polarizing structure embodying all of the features of the count in issue on or about April 27, 1937 *and therefore reduced the invention to practice on or about April 27, 1936.*

Crabbs v. *Wardell,* 57 App. D. C. 241; 1927 C. D. 190; 19 Fed. Rep. (2nd) 715 (App. D. C. 1927)

Bennett v. *Fitzgerald,* 18 CCPA 1201; 1931 C. D. 448; 48 Fed. Rep. (2nd) 917

Fink v. *Humel,* 21 CCPA 1057; 1934 C. D. 436; 70 Fed. Rep. (2nd) 115

Payne v. *Hurley,* 21 CCPA 1144; 1934 C. D. 499; 71 Fed. Rep. (2nd) 208

Fausek et al v. *Vincent,* 25 CCPA 770; 1938 C. D. 184; 92 Fed. Rep. (2nd) 909

Hurd v. *Smith,* 25 CCPA 1137; 1938 C. D. 551; 97 Fed. Rep. (2nd) 147

Moreover, if we examine the Sauer disclosure further, we find that no use for the polarizing structure beyond a conventional visor use is contemplated. Under the circumstances, therefore, if any demonstration of utility was required for a reduction to practice, it was clearly provided by Chubb's tests of the laminations constructed by him with a polarizing screen whereby the polarizing properties of the structure were fully determined. As a visor, for example, in a headlight glare elimination system, the function of the polarizing structure was to screen out polarized light of a particular character. Its utility for this purpose could be adequately established by the polarizing tests to which Chubb subjected each of the polarizing structures made by him. Accordingly, the latter tests were sufficient to demonstrate to Chubb's satisfaction the practicability, at least for visor purposes, of the structures made by him and accordingly the structures, when so tested, clearly constituted a reduction to practice of the invention in issue. *Wyman* v. *Donnelly,* 21 App. D. C. 81, 1903 C. D. 556; *Rolfe* v. *Hoffman,* 26 App. D. C. 336, 1906 C. D. 588; *Luellen* v. *House,* 48 App. D. C. 218, 1919 C. D. 138; *Brydle* v. *Honigbaum,* 19 C.C.P.A., 773, 54 Fed. Rep. (2nd) 147; *Olsen* v. *Thompson,* 22 C.C.P.A. 1212, 77 Fed. Rep. (2nd) 104.

It is to be additionally noted that Chubb was actually satisfied that these polarizers could be used as visors for he so used them in road tests.

It is accordingly submitted that the uncontradicted evidence on Smith's behalf compels a conclusion that Smith reduced to practice the invention in issue on or about April 27, 1936, and many times more prior to the earliest date available to Sauer.

Findings 17, 19, 20 and 22 on the Issue of Reduction to Practice Are Clearly in Error.

A principal error made by the court below in finding against appellants on the question of reduction to practice seems directly attributable to an erroneous belief that for a reduction to practice of the invention here involved Smith had to reduce to practice not only the invention in issue, but still another invention, namely, a polarizing structure satisfactory for use as a headlight screen. Sauer states that the invention may be used per se in the windows and windshields of vehicles in a known manner to eliminate reflected glare. Certainly its utility is in no respect dependent upon a successful functioning as a headlight screen, for Sauer makes no mention of its possible use in this respect.

Despite this, the court set up as a principal reason for holding against appellants on the question of reduction to practice the fact that the laminations made by Chubb, when used as headlight screens, were like other commercial polarizers of that period—inadequate because of their lack of heat resistance. For example, in Finding 17 (App. 94, Par. 17), the court below held that for a reduction to practice by appellants, the five-ply laminations made by them "must be proved to have been adequately tested in their intended application of eliminating headlight glare and to have had practical utility in eliminating headlight glare", thus clearly expecting appellants to reduce to practice not only a windshield visor but also a headlight shield.

In Finding 19 (App. 95, Par. 19), the court again held that the five-ply laminations were insufficient to establish a reduction to practice, giving as the reason for this holding that the laminations, when used in a two-fold fashion, *i.e.*, as a visor and as a headlight shield, "were of no use in the elimination of headlight glare, since the heat of the headlights would in a short time injure the polarizer in the laminations placed over the headlights", thereby disregarding again the fact that the laminations could unquestionably function as visors even in such a system without injury during use and that the only use disclosed by Sauer in obtaining allowance of his claim is a visor use.

This same error also underlies the reasoning in Finding 20 (App. 95, Par. 20). It appears also in Finding 22 (App. 95-6, Par. 22), wherein the court said that the five-ply laminations were not reductions to practice because the evidence "does not prove adequate and successful testing in these years of the laminations in their intended use of eliminating headlight glare".

The court was also in error in Paragraph 22 (App. 95-6) in rejecting the laboratory tests of Chubb for the reason that the "results of the testing do not establish the practical utility in eliminating headlight glare of a 'polarizing portion of the foil merging with decreasing polarizing effect into the surrounding non-polarizing area of the foil',". Under the circumstances, it is not clear what "practical utility" of the merging area beyond the facts clearly established and found, must be proven by Smith in order to entitle him to a reduction to practice. Chubb knew his structure contained an area of gradual merger and was sufficiently satisfied with its polarizing properties to mount it as a visor on an automobile. Sauer's specification contains no description of any special practical utility realized by the inclusion of the area of gradual merger. Such advantages as were realized from a gradual merger are believed to have been evident from the construction itself and required no special tests or demonstrations in order to establish its utility. Certainly no other conclusion can be reached from either the Sauer specification or the testimony adduced by appellants.

Finding 15 is Contrary to Law.

The court also clearly erred in holding in Finding 15 (App. 94, Par. 15) that the five-ply laminations made on April 27, 1936 were not a sufficient embodiment of the invention since "these laminations used the polarizing film made by Lewis W. Chubb, Jr., on April 17, 1936, and this film was admitted by Chubb to be far from perfect".

The facts clearly establish that the film was sufficiently satisfactory as a polarizer for Chubb to form into a five-ply lamination, and furthermore that when so formed into a five-ply lamination and tested for its polarizing properties, the structure was considered by Chubb sufficiently satisfactory to be mounted in an automobile as a visor for road tests. The law covering this point is well settled. Mechanical perfection is never required of a reduction to practice. This court, in *Sydeman et al* v. *Thoma,* 32 App. D. C. 362; 1909 C. D. 340, quoted with approval the following language from *Gallagher* v. *Hien,* 25 App. D. C. 77; 1905 C. D. 624: "Nor do we think that mechanical perfection, or that, as has been well stated, there are 'possibilities of greater excellence in shape, location, arrangement, material, or adjustment', essential for a reduction to practice." (See also *Norden* v. *Spaulding,* 24 App. D. C. 286; *Downs* v. *Andrews,* 58 App. D. C. 91; *Sanders* v. *Emerson,* 37 App. D. C. 598.)

The Holding in Finding 24 is Contrary to Law.

The court also erred in Finding 24 (App. 96) in its holding that there was some burden upon appellants to satisfactorily explain "why if they had successfully reduced the invention in issue to practice as early as April 27, 1936, and many times thereafter in 1936 and 1937, . . . they failed to file an application for patent for the invention until June 26, 1940".

It is well settled as a matter of law that once an inventor has reduced an invention to practice, there is no burden upon him to file an application promptly, provided the facts associated with the delay do not establish an abandonment of the invention. *Farmer* v. *Brush*, 1880 C. D. 5; *Townsend* v. *Smith,* 17 CCPA 647; 1930 C. D. 63; 36 Fed. (2nd) 292; *Wietzel* v. *Lacy,* 17 CCPA 943, 1930 C. D. 329. *Rolfe* v. *Hoffman,* 26 App. D. C. 336. It is equally well established that abandonment must be affirmatively proved. *In re Mower,* 1899 C. D., 395; 15 App. D. C. 144. *Hathaway* v. *Field et al.,* (1919) C. D., 177; 48 App. D. C. 369.

Moreover, in the present case there is ample evidence to indicate the cause for the delay. Appellants were concerned with the production of a commercially satisfactory glare-elimination system which involved the completion of a number of inventions, only one of which was the invention in issue. The activity of Smith and Chubb in this field clearly negatives any inference of an intention to abandon this specific invention subsequent to its reduction to practice.

SAUER'S SPECIFICATION DOES NOT ENTITLE HIM TO CONSTRUCTIVE REDUCTION TO PRACTICE.

The Sufficiency of the Sauer Specification is in Issue in This Proceeding.

A proceeding under R. S. § 4915 is a proceeding de novo in equity and "is prepared and heard upon all competent evidence adduced and upon the whole merits". *Butterworth* v. *United States, ex rel. Hoe,* 112 U. S. 50, 61. It cannot select a single issue which affects the applicant's right to a patent without determining all the other issues on which that right depends. *Hill* v. *Wooster,* 132 U. S. 693.

The issue presented in this proceeding is priority of invention, and it has been held that the question of operativeness in a contest of priority is ancillary to the question of priority. *Kollsman* v. *Carbonara,* 24 CCPA 1149, 88 F. (2d) 966; *Creed et al* v. *Potts,* 96 Fed. Rep. (2d) 317; 25 CCPA 1084; 1938 C. D. 498.

To sustain a finding adverse to appellants, there must necessarily be a finding that Sauer reduced the invention to practice either constructively or actually prior to appellants. Sauer relies solely on a constructive reduction to practice so that his case for priority rests entirely on the disclosure of his United States application as filed. To be entitled to his filing date for a constructive reduction to practice, Sauer's application insofar as it discloses the invention here involved, must be sufficiently full and complete to satisfy the requirements of R. S. 4888 of the Patent Statutes. The statute requires a detailed description that is full enough, clear enough, concise enough, and exact enough to enable any person skilled in the art or science to which the invention appertains or with which it is most nearly connected to make and use the invention. It must point out with particularity the specific contribution which is inventive in character. More than that, the description must explain the principle of the invention and the best mode in which the inventor has contemplated applying that principle.

Accordingly, if this court fails to find favorably for appellants on the question of actual reduction to practice, it must necessarily turn to the question of whether Sauer's specification as filed is sufficient to satisfy these statutory requirements for a constructive reduction to practice. Thus, the issue of the operativeness and sufficiency of the Sauer specification, raised as it is by the pleadings (App. 4, Par. 6) is squarely presented for consideration in this proceeding.

The court below gave due consideration to the question, but notwithstanding clear and convincing evidence to the contrary, found the Sauer specification to be sufficient (App. 98, Par. 35).

Sauer's Specification is Inadequate Within R.S. § 4888.

As has been previously observed herein, the patentable or novel feature of the polarizing structure of the invention in issue is the area of gradual merger between the polarizing portion of the foil and the surrounding nonpolarizing portion. Invention resides in the provision of this feature.

With respect to this feature of the invention, Sauer's entire disclosure consists of the following:

> "Fig. 7 is another front elevation of a modified embodiment of the invention to illustrate the gradual merger of the polarizing layer into a nonpolarizing layer surrounding the former." (App. 85, col. 2, line 18.)
>
> "The dispersion of this dichroitic crystalline material in the layers 1, 4 or 8 may be a uniform dispersion *or if desired the crystalline particles adjacent the marginal portions of the layers may be gradually scattered and arranged irregularly oriented* as illustrated in Fig. 7 so as to merge the polarizing area 8 gradually along the margins thereof into the non-polarizing surrounding area 9 of the intermediate layer 6." (App. 86, column 2, lines 17-25.) (Emphasis ours.)

The dichroitic crystalline material referred to in the second of the foregoing quoted paragraphs is described by Sauer in another part of his specification as follows: "Material of this character is now well known in the art, and may be designated as dichroitic crystalline material." (App. 85, col. 2, lines 28-30.)

Thus, the teaching of Sauer with respect to the means for putting into practice the desired result of a gradual merger consists in the statement that the crystalline particles "may be gradually scattered and arranged irregularly oriented" (App. 86, col. 2, lines 20-21). This alone is Sauer's full and exact description to those skilled in the art of a means of achieving the invention. This alone is Sauer's explanation of the principal and best mode of applying the principle of the invention.

It is significant that Sauer makes no mention of the nature of the scattering and the degree of irregular orientation, does not specify the character of the dichroitic crystalline particles that are preferred, makes no mention of the specific carrier for those particles, and in particular completely fails to indicate in any respect whatsoever how the gradual scattering and irregular arrangement of the crystalline particles is to be achieved. There is additionally no indication by Sauer of the width or other dimensions of the area of gradual merger, nor any mention of any particular utility for his merging area. If Sauer's constructive reduction to practice is subjected to the same requirements as Smith's actual reduction to practice, this last deficiency alone renders the Sauer specification inadequate for the court below required some special showing of utility for this area of gradual merger in appellants' proofs of an actual reduction to practice (App. 96, Par. 22.)

In view of the foregoing, it is respectfully submitted that the Sauer disclosure on its face is insufficient to entitle Sauer to a reduction to practice. At best it embodies an intellectual notion that a thing can be done without any disclosure of means for doing it. This alone does not furnish a basis for a patent, nor establish a constructive reduction to practice. "Invention consists of the conception of the idea *and of means for putting it in practice and producing the desired result.* Until the latter conception is complete and ready to be put in some practical form, there is no available conception within the meaning of patent law". (Emphasis ours.) *Burson* v. *Vogel,* 29 App. D. C. 388.

Sauer's Specification, Insofar As It Suggests a Means for Achieving the Desired Result, is Inoperative.

As hereinbefore pointed out, the "dichroitic crystalline material" to which Sauer makes reference is the polarizing material known to the art as of the time of his invention. This material consists of polarizing crystals, each a polarizer in itself, suspended in a transparent medium such as a plastic which holds the crystals in oriented condition—that is, with their axes in parallel relation to one another. Blake testified that all of the commercial polarizers as of December, 1937 were of this crystal type (App. 81, Q. 21-22).

If two of these sheet polarizers are overlapped with their polarizing axes at right angles to one another, they form an opaque unit. This is a known scientific fact of which the courts can well take judicial notice and is true whether the polarizers are sheets or *crystals.* The testimony of Blake (App. 82) is clear on this point:

> "*Q.* 24. I note that on the piece of material that you produced there is a border that is opaque. Is that correct?
>
> *A.* That is right.
>
> * * *
>
> *Q.* 26. What renders it opaque?
>
> *A.* It is opaque because of lack of orientation of the crystals.
>
> * * *
>
> *Q.* 28. What renders the film transparent?
>
> *A.* When the polarizing crystals are arranged so that their optical axes are substantially parallel, light will be transmitted by even multiple layers of such crystals.
>
> *Q.* 29. When the optical axes of the crystals are not

> parallel and the crystals overlie one another, what happens?
>
> *A.* Then the amount of light transmitted will be less than when the crystals are all oriented parallel, and the amount of light transmitted will depend on the degree of disorientation or random position of the crystals themselves."

To obtain the gradual merger of the invention requires an area of decreasing polarization and increasing transparency and Sauer's only suggestion of a way of achieving this result is that "the crystallinic particles * * * may be gradually scattered and arranged irregularly oriented" (App. 86, col. 2, lines 18-22).

Obviously, therefore, what Sauer proposes to do in order to obtain a merging area of decreasing polarization and increasing transparency, namely, to scatter and disorient the dichroitic crystals will, in fact, produce an area of decreasing rather than increasing transparency. This necessarily follows from the fact that if the crystalline particles are disoriented and their axes crossed with respect to one another, they will tend to form light-blocking units within the plastic matrix, thereby preventing rather than achieving a gradual merger with the surrounding transparent nonpolarizing area.

Clearly, therefore, the method which Sauer suggests for obtaining the result he desires is completely inoperative for that purpose.

This is visually demonstrated by Plaintiffs' Exhibit 10, which is the material to which Blake was specifically referring in the above testimony. The borders of the light-polarizing area of this exhibit consist of disoriented crystals, and instead of providing an area of gradually increasing transparency between the polarizing area and the surrounding nonpolarizing area, they actually form an area substantially opaque to light.

The court properly found as a fact that Blake's testimony shows "that disorientation will allow less transmission of light than orientation and that the amount of light transmitted will depend on the degree of disorientation and density of the crystals" (App. 98, Par. 32). From this it clearly follows that Sauer's specification, insofar as it suggests disorientation for the purpose of achieving the desired result, will not be operative.

The lower court, however, failed to so conclude, erroneously sustaining the sufficiency of the Sauer disclosure by holding that although disorientation will diminish light transmission, there is nothing in the Sauer disclosure "that requires the crystals to be disoriented in such a degree and to overlie one another in sufficient density to create opacity" (App. 98, Par. 32).

In so holding, the court below has missed the point of Blake's testimony. To be operative, Sauer's specification must disclose a method of obtaining an area of merger—that is, an area which increases in transparency until it has achieved the transparency of the surrounding transparent area. Such merger cannot possibly be achieved with an area of decreasing transparency, even though the transparency never decreases to the point of opacity and Blake's testimony unequivocally establishes that decreased transparency must necessarily follow from disorientation of the crystals in any density.

Moreover, while there is nothing in the Sauer disclosure which requires the crystals to be disoriented in such a degree and to overlie one another in sufficient density as to create total opacity, *there is also nothing in the specification which teaches what, if any, degree of disorientation or density of the crystals can possibly produce an area of gradual merger.*

One other point may be noted which clearly indicates that Sauer was without any concept of a means of achieving the desired merger. In the prosecution of the Sauer application the Examiner rejected the claim here in issue as based on an insufficient disclosure (Plff's Exh. 1, Office Action of April 27, 1938). To overcome this rejection, Sauer argued: "With respect to the gradual decreasing polarizing effect of the marginal portions of the area 8, Fig. 7, it is desired to point out that this result is obtained by applying heat to the margin of the area 8. This has the result that the crystalline particles of the polarizing medium, which normally are oriented parallel to each other, assume a more or less non-parallel position so that they lose their polarizing effect." However, not only does non-parallel disposition of the crystalline particles fail to produce the result intended, but the method suggested by Sauer in this amendment for obtaining the non-parallelism is completely inoperative for the latter purpose. On this point Blake testified (App. 81) in the court below as follows:

> "*Q.* 18. Have you in the course of your experience with Polaroid Corporation performed sufficient tests to reach any conclusion as to the effect upon such polarizing materials of the application of sufficient heat to soften the carrier to a point where the crystals are free to move?
>
> "*A.* In every case the polarizing crystals themselves will decompose and become non-polarizing before the plastic is sufficiently soft to permit crystal movement."

The foregoing testimony, therefore, clearly establishes that the procedure which Sauer suggests in the amendment (which incidentally forms no part of his application and cannot contribute to the sufficiency of his disclosure as a constructive reduction to practice) if used on any of the polarizing sheets commercially available as of the time of the filing of the Sauer application would, in fact, destroy the polarizing crystals and render the heated area completely nonpolarizing. This procedure, therefore, can neither disorient nor scatter the polarizing crystals, and plainly cannot produce an area of gradual merger.

However, the court below, while accepting Blake's testimony on the foregoing point, argues that since Blake admitted there were special crystal types of polarizers known in the art on December 30, 1937 and since no proofs were offered by appellants that the application of heat to these special types of polarizers would render the crystals non-polarizing, Sauer's specification is not defective (App. 98, Par. 33). This is clear error.

If, in fact, only special types of polarizers could be suitably employed, according to the teaching of Sauer, Sauer was required by statute to describe those special polarizers in detail and to point out that only such special polarizers would be operative. Yet, Sauer's specification plainly states that the polarizing material employed in his invention is the material "now well known in the art and may be designated as dichroitic crystalline material" without making any distinction between the known materials.

Either Sauer was without any conception whatsoever of a means for achieving the gradual merger or, if he had that conception, he willfully withheld it. In either case, Sauer's disclosure is insufficient to constitute a constructive reduction to practice. It merely embraces the desired result without any teaching of the manner in which the result could be obtained. The law on this point is clear. To constitute a constructive reduction to practice, there must be not only a disclosure of the desired result, but also a means for achieving that result. (See *O'Donnell* v. *Hartt*, 22 CCPA 958; 75 F. (2d) 195; *Fenner* v. *Blake*, 30 App. D. C. 507; 1908 C. D. 404; *Meier and Swift* v. *Sullivan*, 45 App. D. C. 10; 1916 C. D. 178.)

SAUER'S EARLIEST DATE.

For priority, Sauer relies on a constructive reduction to practice. His United States application was filed on December 30, 1937 and the oath thereof makes reference to certain Gebrauchsmuster filed by Zeiss Ikon Aktiengesellschaft in Germany. Sauer claims the benefit of a Gebrauchsmuster filed December 31, 1936 for a constructive reduction to practice under R. S. 4887. The latter date, if available to Sauer, is still much later than the dates of the acts on which appellants rely for reduction to practice, which took place on or about April 27, 1936. Accordingly, if appellants are here sustained on the question of reduction to practice, Sauer can under no circumstances overcome appellants' earliest date.

Similarly, if Sauer's United States specification because of its meagre disclosure of the invention does not entitle him to a constructive reduction to practice, the earlier filed Gebrauchsmuster are of no additional benefit to him since their disclosure is in no respect better than the disclosure of the Sauer United States application.

Accordingly, the question of whether or not Sauer is entitled to the Gebrauchsmuster date as a date for a constructive reduction to practice is not believed to be relevant to the principal issues raised here on appeal.

CONCLUSION.

The court below was clearly in error in finding against Smith both on the issue of Smith's actual reduction to practice and the insufficiency and inoperativeness of the Sauer disclosure.

Smith is clearly entitled to an award of priority:

1. Because he actually reduced the invention to practice prior to the earliest date claimed by Sauer; and/or
2. Because Sauer's specification is insufficient and in-

operative and does not entitle him to a constructive reduction to practice.

The judgment of the lower court should be reversed.

Respectfully submitted,

CECIL A. BEASLEY, Jr.,
American Security Building,
Washington, D. C.
Counsel for Appellants.

Donald L. Brown,
Charles Mikulka,
Of Counsel.

APPENDIX.

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I.

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II.

EXCERPTS FROM THE TESTIMONY AND PROCEEDINGS BEFORE THE PATENT OFFICE IN INTERFERENCE No. 79,902 DESIGNATED BY APPELLANTS AND APPELLEES:

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United States Court of Appeals for the District of Columbia.

Appeal No. 9349.

POLAROID CORPORATION AND ROBERT A. SMITH,
APPELLANTS,

v.

JAMES E. MARKHAM AS ALIEN PROPERTY CUSTODIAN
AND
CASPAR W. OOMS AS COMMISSIONER OF PATENTS,
APPELLEES.

APPENDIX TO APPELLANTS' BRIEF.

APPEAL FROM THE JUDGMENT OF THE DISTRICT COURT OF THE UNITED STATES FOR THE DISTRICT OF COLUMBIA.

I.

PLEADINGS AND OTHER PAPERS DESIGNATED BY APPELLANT.

Complaint.

The plaintiffs herein for their bill of complaint allege:

1. That the plaintiff, Polaroid Corporation, is a corporation duly organized and existing under the laws of the State of Delaware and having an office and place of business at 730 Main Street, Cambridge, Massachusetts, and that the plaintiff, Robert A. Smith, is a citizen of the United States and a resident of Mahwah, in the County of Bergen and State of New Jersey.

2. That the defendant, Leo T. Crowley, is the Alien Property Custodian of the United States, a legal resident of the District of Columbia, and is sued as the Alien Property Custodian; that the defendant, Conway P. Coe, is the Commissioner of Patents, a legal resident of the District of Columbia, and is sued as the Commissioner of Patents.

3. That this is a suit in equity brought under the patent laws of the United States (Revised Statutes Section 4915; U. S. Code, Title 35, Section 63).

4. That long prior to June 26, 1940, the plaintiff, Robert A. Smith, was the true, original and first inventor of certain new and useful improvements in light-polarizing material for use in glare elimination, not known or used by others in this country and not patented or described in any printed publication in this or any foreign country, and not in public use or on sale in this country prior to the invention and discovery thereof by said Robert A. Smith or for more than two years prior to his application for Letters Patent therefor, as hereinafter cited, and for which invention no application for Letters Patent has been filed by him or his legal

representatives or assigns in any foreign country more than twelve months prior to his application for Letters Patent of the United States, as hereinafter cited, and which invention had not and has not been abandoned.

5. That on December 30, 1937, Hans Sauer, a resident of Dresden, Germany, filed an application for Letters Patent of the United States, which application received Serial No. 182,497, and that on December 26, 1939 the Commissioner of Patents improperly and contrary to law issued on said application, Serial No. 182,497, to said Hans Sauer, United States Letters Patent 2,185,018 containing a single claim, as follows:

> A polarizing structure comprising a base of transparent material, a foil of transparent material applied to one surface of said base and covering the entire area of the same, a portion of said foil located within the outline of the same being adapted to polarize light passing therethrough, the polarizing portion of the foil merging with decreasing polarizing effect into the surrounding non-polarizing area of the foil.

6. That said application of Hans Sauer did not describe the invention claimed in such full, clear, concise and exact terms as to enable a person skilled in the art or science to which it appertains to make the same as required by law (Section 4888 R.S.; U.S.C. Title 35, Sec. 63), and that the specification of Sauer is inoperative as to the subject matter of the above claim.

7. That on June 26, 1940, the plaintiff, Robert A. Smith, being as aforesaid the original, first and sole inventor of said improvements in light-polarizing material for use in glare elimination and entitled to a patent therefor, duly filed in the United States Patent Office an application for Letters Patent on said invention, said application complying in all respects with the requirements of the law in such

cases made and provided, and complying in all respects with the rules of practice in the United States Patent Office, which application received Serial No. 342,467.

8. That said application, Serial No. 342,467, contained as one of its claims the above claim of the Sauer patent and that in compliance with the rules of practice of the Patent Office, the plaintiff, Robert A. Smith, at the time he filed said application, requested that an interference be declared between his application and the patent to Sauer, No. 2,185,018, which was duly identified.

9. That on September 16, 1940, the Commissioner of Patents declared an interference, No. 78,603, between said application for Letters Patent, Serial No. 342,467 of Robert A. Smith, and said patent, No. 2,185,018 of Hans Sauer, the issue of said interference comprising the single claim of said Sauer patent.

10. That said Interference No. 78,603 was improperly terminated on May 20, 1941 by the Commissioner of Patents on the ground that the single claim constituting the issue of the interference was unpatentable to Robert A. Smith; that subsequent to the termination of said interference the Board of Appeals of the Patent Office held said claim to be patentable to said Robert A. Smith; and that on January 21, 1942 the Commissioner of Patents declared a new interference, No. 79,902, between said application of Robert A. Smith and said patent of Hans Sauer, the issue of said interference comprising the single claim of said Sauer patent.

11. That no testimony was taken at the proceedings in said Interference No. 79,902 on behalf of Hans Sauer and that the said plaintiffs duly presented to the Commissioner of Patents, as required by law, full and sufficient proof establishing the fact that the said Robert A. Smith, as heretofore alleged, was the true, original and first inventor of the improvements constituting the subject matter of said interference and after due proceedings had, the Board of

Interference Examiners of the Patent Office erroneously and contrary to law denied priority of invention in the interference issue to the said Robert A. Smith.

12. That consequently the Commissioner of Patents has refused, and still refuses, to grant Letters Patent on the said application of Robert A. Smith for the invention embraced in said Interference No. 79,902 although said Robert A. Smith is lawfully entitled thereto.

13. That no appeal to the United States Court of Customs and Patent Appeals from said decision of the Board of Interference Examiners is pending or has been decided.

14. That by proper instrument in writing duly recorded in the United States Patent Office on June 26, 1940, Liber D184, Page 598, the plaintiff, Robert A. Smith, assigned his entire right, title and interest in and to his application for Letters Patent, Serial No. 342,467, to the plaintiff Polaroid Corporation, a corporation of Delaware; that by proper instrument in writing duly recorded in the United States Patent Office, Hans Sauer assigned his entire right, title and interest in and to his application for Letters Patent, Serial No. 182,497, to Zeiss Ikon Aktiengesellschaft, of Dresden, Germany; that subsequent to such assignment by Hans Sauer, the entire right, title and interest in said application and the Letters Patent No. 2,185,018 of Hans Sauer were duly vested in the defendant, the Alien Property Custodian, in accordance with law (the Trading with the Enemy Act of October, 1917, as amended, and the First War Powers Act of 1941).

Wherefore, the plaintiffs bring this suit in equity under and in accordance with the provisions of the patent laws, and pray:

(*a*) That this Honorable Court adjudge Robert A. Smith to be the first, original and sole inventor of the invention defined by the aforesaid claim set forth in and forming the issue of the aforesaid interference; and that Polaroid Corporation, as assignee of all right, title and interest in and to said invention and in and to the said application of said Robert A. Smith, is entitled to receive Letters Patent of the United States for said invention.

(*b*) That this Honorable Court decree that the Commissioner of Patents be directed to issue to Polaroid Corporation, as assignee of said Robert A. Smith, Letters Patent of the United States, including the aforesaid claim.

(*c*) For such other and further relief as to this Honorable Court may seem just and proper.

CECIL A. BEASLEY, Jr.,
American Security Building, Washington 5, D. C.,
Attorney for Plaintiffs.

Donald L. Brown,
Charles Mikulka,
of Counsel for Plaintiffs,
730 Main Street, Cambridge, Massachusetts.

Answer to the Complaint by Defendant Conway P. Coe, Commissioner of Patents.

To the Honorable the Justices of the District Court of the United States for the District of Columbia:

1. Defendant Conway P. Coe, Commissioner of Patents, admits the allegations of paragraph 1.

2. He admits the allegations as to his official position but avers that while his official residence is in the District of Columbia, he is a legal resident of the State of Maryland.

3. He admits the allegations of paragraph 3.

4. He admits that plaintiff Robert A. Smith made, in an application for a patent for improvements in a Light Polarizing Material for use in Glare Elimination, allegations corresponding to the allegations of paragraph 4, but denies that said allegations are sufficient to justify the issuance of a patent on the application specified in paragraph 7.

5. He admits the allegation as to the filing of an application for patent by Hans Sauer and the issuance thereon

of patent No. 2,185,018, but denies that the issuance of said patent was improper or contrary to law.

6. He denies the allegations of paragraph 6.

7. He admits that Robert A. Smith filed an application for patent as specified in paragraph 7 but denies that he was the first and original inventor of the subject matter thereof and denies that he is entitled to a patent thereon.

8, 9. He admits the allegations of paragraphs 8 and 9.

10. He admits that Interference No. 78,603 was terminated on the date stated but avers that it was terminated by a decision of the Primary Examiner holding that the claim was not patentable to Smith, that a rejection of the claim was then entered in the Smith application and on an appeal therefrom the action of the Examiner rejecting the claim was reversed and a new interference No. 79,902 was instituted between the same parties.

11. He admits the allegation as to the decision in the Interference No. 79,902 being in favor of the patentee Sauer but denies that said decision was either erroneous or contrary to law.

12. He admits that he has refused and still refuses to issue to plaintiff Polaroid Corporation a patent on the application of Robert A. Smith, No. 342,467, containing the claim set out in paragraph 5 of the complaint since that claim is deemed to be unpatentable to Smith in said application, in view of the decision of the Board of Interference Examiners awarding priority of invention of the subject matter of said claim to Hans Sauer.

13, 14. He admits the allegations of paragraphs 13 and 14.

W. W. COCHRAN,
Solicitor, U. S. Patent Office,
Attorney for CONWAY P. COE,
Commissioner of Patents,
one of the Defendants.

October 4, 1943.

I hereby certify that a copy of this answer to the complaint by defendant Conway P. Coe, Commissioner of Patents, was mailed today, October 4, 1943, to the attorney for plaintiffs, Mr. Cecil A. Beasley, Jr., American Security Building, Washington, D. C., and a copy to Mr. Leo T. Crowley, Alien Property Custodian, National Press Building, one of the defendants.

W. W. Cochran, *Solicitor.*

Answer to the Complaint.

Leo T. Crowley, Alien Property Custodian, defendant in the above-entitled cause, answering the bill of complaint, says:

First: Defendant admits the allegations of paragraph 1 of the bill of complaint.

Second: Answering paragraph 2 of the bill of complaint, defendant admits the allegation as to his official position, but avers that while his official residence is in the District of Columbia, he is a legal resident of the State of Wisconsin.

Third: Defendant admits the allegations of paragraph 3 of the bill of complaint.

Fourth: Defendant denies the allegations of paragraph 4 of the bill of complaint.

Fifth: Answering paragraph 5 of the bill of complaint, defendant admits the allegation as to the filing of an application for patent by Hans Sauer, and the issuance thereon of Patent No. 2,185,018, but denies that the issuance of said patent was improper or contrary to law.

Sixth: Defendant denies the allegations of paragraph 6 of the bill of complaint.

Seventh: Defendant admits that Robert A. Smith filed an application for patent as specified in paragraph 7 of the bill of complaint, but denies that he was the first and original inventor of the subject matter thereof, and further denies that he is entitled to a patent thereon.

Eighth and Ninth: Defendant admits the allegations of paragraphs 8 and 9 of the bill of complaint.

Tenth: Answering paragraph 10 of the bill of complaint, defendant admits that interference 78,603 was terminated on the date stated, but avers that it was terminated by a decision of the Primary Examiner holding that the claim was not patentable to Smith, that a rejection of the claim was then entered in the Smith application, and on an appeal therefrom, the action of the Examiner rejecting the claim was reversed, and a new interference No. 79,902 was instituted between the same parties.

Eleventh: Answering paragraph 11 of the bill of complaint, defendant admits that no testimony was taken at the proceedings in said interference No. 79,902 on behalf of Hans Sauer, but defendant denies the other allegations of paragraph 11 of the bill of complaint.

Twelfth: Answering paragraph 12 of the bill of complaint, defendant admits that the Commissioner of Patents has refused and still refuses to grant Letters Patent on the said application of Robert A. Smith for the invention embraced in interference No. 79,902, but denies that said Robert A. Smith is lawfully entitled thereto.

Thirteenth and Fourteenth: Defendant admits the allegations of paragraphs 13 and 14 of the bill of complaint.

Wherefore, defendant denies that the plaintiff is entitled to the relief prayed for or to any relief, and defendant prays that the bill of complaint be dismissed with costs.

A. MATT WERNER,
General Counsel to the
Alien Property Custodian.

EDWARD M. CURRAN,
United States Attorney for the
District of Columbia.
GEORGE A. McNULTY,
Chief, Alien Property Unit
War Division, Department of Justice.
GEORGE F. FOULKES,
Attorney Alien Property Unit
War Division, Department of Justice.
Attorneys for Alien Property Custodian.

I hereby certify that I made service of the foregoing answer on Cecil A. Beasley, Jr., 912 American Security Building, Washington, D. C., attorney for the plaintiff, and on W. W. Cochran, Washington, D. C., attorney for the defendant, Conway P. Coe, Commissioner of Patents, by mailing a copy of said answer by registered mail to each of said attorneys on the twenty-eighth day of October, 1943.

George F. Foulkes,
Attorney Department of Justice,
Washington, D. C.

Stipulation.

It is Hereby Stipulated, by and between the attorneys for respective parties hereto, with the consent of the court, that the record of the proceedings in the Patent Office involving application Serial No. 342,467 of Robert A. Smith, and application Serial No. 182, 497 of Hans Sauer which issued as patent No. 2,185,018, and the record in the interferences (Nos. 78,603 and 79,902) involving said Smith application and said Sauer patent, may be admitted in evidence in the above action in whole or in part on motion of any of the parties, without requiring further cross examination of any of the witnesses who testified in the interference proceedings and without prejudice to the rights of the parties to take further testimony.

CECIL A. BEASLEY, Jr.,
Attorney for Plaintiffs.

February 7, 1944

B. F. GARVEY,
Attorney for Defendant, Leo T. Crowley
as the Alien Property Custodian.

February 7, 1944

W. W. COCHRAN,
Attorney for Defendant, Conway P. Coe
as Commissioner of Patents.

February 7, 1944

Stipulation to Admit in Evidence Certain Patent Office Documents Without Certification.

It is Hereby Stipulated, by and between the attorneys for the respective parties hereto, that there may be admitted in evidence at the hearing of this cause, in whole or in part, on the motion of any of the parties, uncertified copies of the items enumerated below, provided that this stipulation shall not be construed to waive the rights of any of the parties to object to evidence on grounds other than that copies are uncertified copies:

1. Photostatic copies of the Patent Office copies of the Final Decision, with opinion, dated April 13, 1943, and of Decision on Reconsideration, with opinion, dated May 13, 1943, by the Board of Interference Examiners, both decisions being in Interference Proceeding No. 79,902.

2. Printed Patent Office copies of Patent No. 2,185,018 issued to Hans Sauer.

3. Copies of the printed record of the party Smith before the Patent Office in Interference No. 79,902.

CECIL A. BEASLEY, Jr.,
Attorney for Plaintiffs.

February 25, 1944

B. F. GARVEY,
Attorney for Defendant, Leo T. Crowley
as the Alien Property Custodian.

February 25, 1944

W. W. COCHRAN,
Attorney for Defendant, Conway P. Coe
as Commissioner of Patents.

February 25, 1944

Plaintiffs' Motion to Substitute James E. Markham for Defendant Leo T. Crowley as Alien Property Custodian.

Plaintiffs move the court for an order substituting James E. Markham as defendant herein in place of defendant Leo T. Crowley, as Alien Property Custodian of the United States, on the ground that the resignation of the said Leo T. Crowley was accepted by the President of the United States on March 24, 1944; that the said James E. Markham on March 27, 1944, took office as Alien Property Custodian of the United States and now holds such position, and that there is a substantial need for continuing this action against the said James E. Markham as Alien Property Custodian as more particularly appears from the affidavit of Cecil A. Beasley, Jr., attached hereto.

CECIL A. BEASLEY, Jr.,
Attorney for Plaintiffs.

Dated this twenty-fourth day of April, 1944.

Affidavit in Support of Plaintiffs' Motion.

District of Columbia, ss.

Cecil A. Beasley, Jr., being duly sworn says:

(1) He is attorney of record for the plaintiffs herein;

(2) That the above styled cause was heard in the District Court of the United States for the District of Columbia before Justice Daniel W. O'Donoghue on March 13, 1944, and that said cause is now awaiting judgment; and

(3) That in the event a judgment adverse to the interests of plaintiffs is entered, plaintiffs are contemplating taking an appeal to the United States Court of Appeals for the District of Columbia.

CECIL A. BEASLEY, Jr.

Subscribed and sworn to before me this twenty-first day of April, 1944.

Anne A. Linke,
[seal] *Notary Public, D. C.*

Order Substituting James E. Markham for Defendant Leo T. Crowley as Alien Property Custodian.

This cause came to be heard upon motion of plaintiffs to substitute James E. Markham, Alien Property Custodian of the United States, as defendant herein in the place of Leo T. Crowley his predecessor in office, and it appearing to the court that the said Leo T. Crowley has resigned, that the said James E. Markham has duly succeeded to the said office and is now Alien Property Custodian of the United States, and that there is substantial need for continuing and maintaining the action against the said Alien Property Custodian,

It is Ordered this twenty-fourth day of April, 1944, that James E. Markham, Alien Property Custodian of the United States, be substituted as the defendant herein in place of Leo T. Crowley, without prejudice to the proceedings already had in this action and that the title of the action be amended accordingly.

DANIEL W. O'DONOGHUE, *Justice.*

We consent:

B. F. GARVEY,
Attorney for Defendant JAMES E. MARKHAM
as Alien Property Custodian.

W. W. COCHRAN,
Attorney for Defendant CONWAY P. COE
as Commissioner of Patents.

Findings of Fact.

1. This is a suit brought under the provisions of Section 4915 R.S. (U.S.C. Title 35, Sec. 63), as amended, of which this court has jurisdiction.

2. The plaintiff, Polaroid Corporation, is a corporation of Delaware, with an office and place of business in Cambridge, Massachusetts; and the plaintiff, Robert A. Smith, is a citizen of the United States and a resident of Mahwah, New Jersey. The defendant, James E. Markham (substituted by motion for Leo T. Crowley as the Alien Property Custodian), is the Alien Property Custodian of the United States and is here sued as the Alien Property Custodian. The defendant, Conway P. Coe, is Commissioner of Patents and is here sued as the Commissioner of Patents.

3. December 30, 1937 Hans Sauer, a resident of Dresden, Germany, duly filed an application for Letters Patent of the United States, on a Polarizing Structure, Serial Number 182,497, which application eventuated in Letters Patent No. 2,185,018 December 26, 1939, said patent containing one claim as follows:

> A polarizing structure comprising a base of transparent material, a foil of transparent material applied to

> one surface of said base and covering the entire area of the same, a portion of said foil located within the outline of the same being adapted to polarize light passing therethrough, the polarizing portion of the foil merging with decreasing polarizing effect into the surrounding non-polarizing area of the foil.

In the oath forming a part of said application, the applicant set out a number of applications filed in foreign countries, particularly an application for a Gebrauchmuster in Germany, filed December 31, 1936, registered March 10, 1938, number 1,431,367.

By a proper instrument in writing, duly recorded in the United States Patent Office, Hans Sauer assigned his entire right, title and interest in and to said application, Serial Number 182,497, to Zeiss Ikon Aktiengesellschaft of Dresden, Germany; that subsequent to said assignment, Letters Patent No. 2,185,018 of Sauer was duly vested in the Alien Property Custodian, in accordance with authority granted him, particularly Section 2(d) of Executive Order No. 9095 as amended, to be held, used, administered, liquiddated, sold or otherwise dealt with in the interest of and for the benefit of the United States.

4. On June 28, 1940 plaintiff Robert A. Smith filed an application for Light Polarizing Material For Use in Glare Elimination, Serial No. 342,467; by proper instrument in writing the plaintiff Smith assigned his entire right, title and interest to his application for patent, Serial Number 342,467 to the plaintiff Polaroid Corporation

5. Smith's application, Serial Number 342,467 contained as one of its claims, to wit, claim 2, the claim of the Sauer patent and at the time of the filing, plaintiff Smith requested the Patent Office to declare an interference between his application and the Sauer patent No. 2,185,018, which interference was declared by the defendant Coe, Commissioner of

Patents, on September 16, 1940, Interference No. 78,603, which Interference was terminated May 20, 1941 by a decision of the Primary Examiner holding that the claim was not patentable to Smith, pursuant to which a rejection of the claim was entered in the Smith application and on appeal therefrom, the action of the Primary Examiner rejecting the claim was reversed and a new Interference, No. 79,902, was instituted between the same parties, January 21, 1942.

6. Only the party Smith took testimony and was represented at final hearing in said Interference No. 79,902 but both parties filed briefs; on April 13, 1943 the Board of Interference Examiners of the Patent Office awarded priority of invention of the subject matter in issue to Hans Sauer, the senior party (Pl. Ex. 5); on April 29, 1943 the party Smith filed a petition for reconsideration of the decision rendered by the Board of Interference Examiners; on May 13, 1943 the Board of Interference Examiners adhered to their decision of April 13, 1943 (Pl. Ex. 6).

7. No appeal to the United States Court of Customs and Patent Appeals from said decisions of the Board of Interference Examiners is pending or has been decided.

8. By stipulation of counsel the records in Interferences 78,603 and 79,902 were admitted in evidence and in addition, the plaintiffs called the witnesses Lewis W. Chubb, Jr., Robert P. Blake, and Robert A. Smith, all of whom testified in Interference No. 79,902 in the Patent Office. The only exhibit not before the Patent Office is page 67 of the witness Chubb's notebook (Pl. Ex. 7), which notebook was used by the witness when testifying in Interference No. 79,902 (Smith's Exhibits 2, 3, 4, 5, 11, 12, 14 and 15). These are pages 16, 17, 18, 19, 43, 44, 52, 49, 50, 58 and 29 respectively of Chubb's notebook.

9. For the purpose of proving inoperativeness of the

Sauer specification as to the subject matter of the claim here at issue, the witness Blake was examined by plaintiff.

10. The Board of Interference Examiners held that the question of inoperativeness of the Sauer patent could not be considered in view of the fact that the party Smith failed to present a motion to dissolve on this ground under the provisions of Rule 122.

11. Smith, on April 13, 1936, conceived the invention set forth in the count in interference, made sketches and drawings (in evidence as Exhibits 9 and 10 in Interference No. 79,902, part of Plaintiffs' Exhibit No. 4 in the case at bar) which were explained to Lewis W. Chubb, Jr. (testimony of Chubb, Jr., pages 22 to 24, inclusive, of the record of Interference No. 79,902, Plaintiffs' Exhibit No. 3).

12. Chubb testified that under the direction of Smith, on April 17, 1936 a sheet of polarizing material having a tapering thickness varying from .003 inches to .00175 inches was made by him. (Exhibits 10 and 14 in Interference No. 79, 902, part of Plaintiffs' Exhibit No. 4 in the case at bar.)

13. Additional testimony from the witnesses Chubb, Blake and Smith was obtained with a view to supplementing testimony given by them in Interference No. 79,902 on the issue of actual reduction to practice of Smith.

Conclusions of Law.

1. The court has jurisdiction of the parties and of the subject matter herein.

2. The plaintiffs have not sustained the burden resting upon them of proving that the tribunals of the Patent Office were in error in awarding priority of invention to Sauer.

3. Plaintiff Smith has failed to prove diligence from the date of his conception, April 13, 1936 to a date just prior to defendant Sauer's filing date, December 30, 1937.

4. The plaintiff Smith has failed to prove reduction to

practice of the invention at issue, prior to his filing date, June 26, 1940.

5. Proofs offered by the plaintiffs herein failed to show inoperativeness of the defendant Sauer's specification as to the subject matter of the count here at issue.

6. Sauer is the first inventor of the invention specified in the count at issue, which is the claim of Patent No. 2,185,018.

7. Patent Number 2,185,018 was properly granted to the party Sauer on the count here at issue and title thereto was properly vested by the Alien Property Custodian.

The Complaint should be dismissed.

DANIEL W. O'DONOGHUE, *Justice.*

Approved as to form.

CECIL A. BEASLEY, JR.,
Counsel for Plaintiffs.

Judgment.

This cause came on to be heard at this term; and thereupon upon consideration thereof, it is this twenty-fourth day of April, 1944 adjudged as follows:

1. That the defendant herein, Hans Sauer, is the true, original and first inventor of the invention forming the subject matter of the claim of United States Letters Patent No. 2,185,018 issued December 26, 1939; and that the plaintiff Robert A. Smith is not the true, original and first inventor of the invention forming the subject matter of said claim.

2. The Complaint is hereby dismissed with costs against the plaintiff.

DANIEL W. O'DONOGHUE, *Justice.*

Approved as to form.

CECIL A. BEASLEY, JR.,
Counsel for Plaintiffs.

Notice of Appeal to the United States Court of Appeals for the District of Columbia.

Notice is hereby given that the Polaroid Corporation, a corporation, and Robert A. Smith, an individual, plaintiffs in the above-entitled cause, hereby appeal to the United States Court of Appeals for the District of Columbia from the order entered in this action on April 24, 1944, which, among other things, dismisses the Complaint herein.

Dated: July 18, 1944.

CECIL A. BEASLEY, Jr.,
912 American Security Bldg.,
Washington 5, D. C.

NATHANIEL R. FRENCH (by C.A.B., Jr.),
730 Main Street, Cambridge 39, Mass.

Appellants' Statement of Points.

The appellants state that the points upon which they intend to rely on the appeal in this action, are as follows:

1. The court erred in dismissing plaintiffs' complaint.
2. The court erred in holding that the defendant, Hans Sauer, is the true, original and first inventor of the invention forming the subject matter of the claim of the United States Letters Patent, No. 2,185,018, and that the plaintiff, Robert A. Smith, is not the true, original and first inventor of the invention forming the subject matter of said claim.
3. The court erred in holding that the plaintiffs had not sustained the burden resting upon them of proving that the tribunals of the Patent Office were in error in awarding priority of invention to Sauer.
4. The court erred in holding that the plaintiff Smith had failed to prove reduction to practice of the invention at issue, prior to his filing date, June 26, 1940.

5. The court erred in failing to hold that plaintiffs proved a reduction to practice of the invention at issue by plaintiff, Robert A. Smith, prior to the defendant Sauer's filing date, December 30, 1937.

6. The court erred in holding that the proofs offered by the plaintiffs herein failed to show inoperativeness of the defendant Sauer's specification as to the subject matter of the count here at issue.

7. The court erred in failing to hold that the plaintiff Smith was the true, original and first inventor of the invention forming the subject matter of the claim of United States Letters Patent, No. 2,185,018, issued December 26, 1939, to Hans Sauer.

Dated July 18, 1944

CECIL A. BEASLEY, Jr.,
912 American Security Bldg., Washington 5, D. C.,
NATHANIEL R. FRENCH,
730 Main Street, Cambridge 39, Mass.
Attorneys for Plaintiffs.

Service of copy of Appellants' Statement of Points is hereby acknowledged.

James E. Markham,
Attorney for Defendant, James E. Markham
as the Alien Property Custodian.

July 18, 1944

Conway P. Coe,
Attorney for Defendant, Conway P. Coe
as Commissioner of Patents.

July 18, 1944

Plaintiffs' Designation of the Record for Appeal.

1. Complaint.

2. Answer of defendant Conway P. Coe as Commissioner of Patents.

3. Answer of defendant Leo T. Crowley as Alien Property Custodian.

4. Stenographer's transcript of hearing held on March 13, 1944, before Justice Daniel W. O'Donoghue in the District Court of the United States for the District of Columbia, in the cause herein.

5. Plaintiffs' Exhibits 1, 2, 3, 5, 6, 7 and 10.

6. The following portions of Plaintiffs' Exhibit 4 which is comprised of exhibits offered in evidence in Interference No. 79,902 in the United States Patent Office:

   A. Smith's Exhibits 1, 9, 10, 11, 12, 14 and 24, which are documentary exhibits; and

   B. Smith's Exhibits 6, 7, 8, 13, 21, 22 and 23, which are physical exhibits.

7. Order substituting James E. Markham for the defendant Leo T. Crowley as Alien Property Custodian.

8. Findings of Fact and Conclusions of Law.

9. Judgment.

10. Plaintiffs' notice of appeal to the United States Court of Appeals for the District of Columbia.

11. Statement of Points.

12. This designation of record.

13. Order permitting use of original exhibits in lieu of copies.

Dated July 18, 1944

CECIL A. BEASLEY, Jr.,
912 American Security Bldg., Washington 5, D. C.

NATHANIEL R. FRENCH (by C. A. B. Jr.)
730 Main Street, Cambridge 39, Mass.

Order Permitting Use of Original Exhibits in Lieu of Copies.

The parties hereto, through counsel, consent that the originals of all exhibits presented in the District Court of the United States for the District of Columbia may go to the United States Court of Appeals for the District of Columbia in lieu of copies and, it is this eighteenth day of July, 1944, so ordered.

DANIEL W. O'DONOGHUE, *Justice.*

We consent.

CECIL A. BEASLEY, Jr.,
Attorney for Plaintiffs.

July 18, 1944.

B. F. GARVEY,
Attorney for Defendant, JAMES E. MARKHAM
as the Alien Property Custodian.

July 18, 1944.

W. W. COCHRAN,
Attorney for Defendant, CONWAY P. COE
as Commissioner of Patents.

July 18, 1944.

II.

*[*1*]

EXCERPTS FROM THE RECORD FOR SMITH IN THE UNITED STATES PATENT OFFICE IN INTERFERENCE No. 79,902, DESIGNATED BY APPELLANTS AND APPELLEES.

* * * * * * [*5*]

DEPOSITION OF LEWIS W. CHUBB, JR.

Lewis W. Chubb, Jr., being first duly sworn, deposes and says in answer to interrogatories propounded by Mr. Brown:

Q. 1. Will you please state your name, your age, your residence and your occupation. *A.* I am Lewis W. Chubb, Jr.; age thirty-one; residing at 66 Norwood Street, Sharon, Massachusetts, and am employed by Polaroid Corporation as a research physicist.

Q. 2. How long have you been employed by Polaroid Corporation? *A.* Since May 1, 1938.

Q. 3. What were you doing prior to that time? *A.* I was employed by Polarized Lights, Inc.

Q. 4. What was Polarized Lights, Inc? *A.* It was a corporation formed for the purpose of developing light-polarizing materials, particularly for use in antiglare systems for automotive vehicles.

Q. 5. Is that corporation still in existence? *A.* No.

[*6*] *Q.* 6. Do you know what happened to it? *A.* Yes. On March 8, 1938, Polarized Lights, Inc. sold out all its interests to Polaroid Corporation.

Q. 7. Do you know Robert A. Smith, the applicant in this interference? *A.* Yes, I do.

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* Figures in italics and in brackets are the page numbers of Smith Record, Interference No. 79,902.

Q. 8. How long have you known Mr. Smith? *A.* Since the 9th of July, 1932.

Q. 9. Are you in any way related to Mr. Smith? *A.* Yes. I am his son-in-law.

Q. 10. What position did Mr. Smith have with Polarized Lights, Inc.? *A.* He was president and one of the directors.

Q. 11. When did you first enter the employ of Polarized Lights, Inc.? *A.* I do not recall exactly. I began work for the corporation on the 9th of July, 1932, at first without compensation, and worked under those conditions for approximately one year, after which time I became a paid employee.

Q. 12. What was your technical training prior to July, 1932? *A.* On the 14th of June, 1932, I graduated from Ohio State University with the degree of Bachelor of Chemical Engineering.

Q. 13. So that it is correct to say that since your graduation from college you have been continuously working in the field of light polarization? *A.* With the exception of about one month immediately after graduation.

Q. 14. Are you familiar with the count in issue in this interference? *A.* Yes.

Q. 15. Are you familiar with the application of the party Smith? *A.* Yes.

Q. 16. Did you have any occasion to examine that application before it was filed? *A.* Yes.

Q. 17. At whose request did you examine it? *A.* At the request of patent counsel of Polaroid Corporation, and also of Mr. Smith.

Q. 18. Did Mr. Smith ever talk to you about the subject matter of the application, and more specifically about the [7] subject matter of the count in interference, prior to the preparation of the application? *A.* Yes.

Q. 19. Can you fix approximately the first date of such conversation? *A.* To the best of my knowledge it was early in 1936.

Q. 20. Can you tell me where that conversation took place, and substantially what was said by Mr. Smith? *A.* One of the earliest occasions of which I have definite recollection is of Mr. Smith's having called me by telephone at the plant of the du Pont Viscoloid Company in March of 1936 to tell me of an idea that he had conceived in connection with a polarizing visor for use in automotive antiglare systems.

Q. 21. Where was the plant of the du Pont Viscoloid located? *A.* In Arlington, New Jersey.

Q. 22. Where was Mr. Smith phoning from? *A.* The offices of Smith & Serrell in Newark, New Jersey.

Q. 23. What were you doing at the plant of du Pont Viscoloid? *A.* I was working there as an employee of Polarized Lights, Inc. on the development of light-polarizing materials.

Q. 24. Will you please tell us what Mr. Smith told you at that time? *A.* He disclosed to me a structure comprising an automobile windshield between the glass layers of which was laminated a visor-shaped piece of polarizing film considerably smaller than the windshield itself and in such a position as to be generally before the eyes of the driver of the vehicle. This piece of polarizing material was held in place by the plastic layer of the windshield which embedded or surrounded it.

Q. 25. How great an area of the windshield was to be covered by the plastic layer, including the polarizing and non-polarizing portions of that layer? *A.* The entire windshield.

Q. 26. How great a portion of the plastic layer, approximately, was to be polarizing? *A.* About 1/150th.

[*8*] *Q.* 27. Was anything said about the dimensions of the polarizing portion? *A.* Not to the best of my recollection.

Q. 28. Had you been at that time making polarizing visors for use in connection with antiglare systems? *A.* Yes.

Q. 29. Were those visors of any standard size or of various sizes? *A.* Of various sizes, within limits.

Q. 30. Did Mr. Smith explain to you the function of the polarizing portion of the foil which was interposed between the two glass layers of the windshield? *A.* It was unnecessary for him to do so, because I was already familiar with the action of polarizing visors in such systems.

Q. 31. Did Mr. Smith explain to you where the polarizing portion of the layer between the glass sheets was to be positioned with respect, for example, to the edges of the windshield? *A.* Yes. The polarizing portion of the interlayer was to be positioned well away from the upper left-hand corner of the windshield so that it would come roughly before the eyes of the driver of the vehicle.

Q. 32. Did Mr. Smith explain to you the characteristic of the remainder of the adhesive layer with respect to its transparency or opacity? *A.* Yes. The windshield, except for the polarizing section, was described as being clear and transparent.

Q. 33. To recapitulate, am I correct in assuming that Mr. Smith, at the date of this telephone conference, disclosed to you a windshield for use in automobiles comprising two sheets of glass which were adhesively united by a transparent layer or foil of a plastic material in which there was to be embedded a polarizing structure, and that this polarizing structure was to be surrounded by the plastic adhesive and spaced from the edges of the windshield so that there was to be an area of clear, non-polarizing plastic surrounding the polarizing portion of the windshield? *A.* Yes.

Q. 34. Now I show you a piece of paper and ask you if you have ever seen that before? *A.* Yes, I have.

[*9*] *Q.* 35. Can you fix approximately the time when you first saw it? *A.* No, I cannot.

Q. 36. Can you fix a date which you know to be subsequent to the first date you saw that? *A.* Yes. March 8, 1938.

Q. 37. Will you examine this piece of paper and tell me what relation it bears to the disclosure which Mr. Smith made to you early in 1936, and which you have just described? *A.* This is a longhand disclosure in ink, with two sketches, showing an automobile windshield with a polarizing area included between the glass layers thereof, and describes completely the structure about which Mr. Smith telephoned me at the du Pont Viscoloid Company.

Q. 38. Are you familiar with Mr. Smith's handwriting and signature? *A.* Yes.

Q. 39. Can you say whether this paper is in his handwriting? *A.* Yes. It is.

Q. 40. Can you say whether the three signatures, R. A. Smith, one at the top and two at the bottom of the sheet, are his signatures? *A.* Yes, I can say that they are.

Q. 41. Do you know a Mr. B. Fred Pine? *A.* Yes.

Q. 42. Who is he? *A.* He is the office manager of Smith & Serrell.

Q. 43. How long have you known him? *A.* Since 1932.

Q. 44. Are you familiar with his signature? *A.* Yes, I am.

Q. 45. Can you say whether the "B. Fred Pine" at the bottom of the sheet is Mr. Pine's signature? *A.* Yes, it is.

By Mr. Brown: I ask that a photostat of this sheet be marked for identification as Smith Exhibit 1.

[Marked Exhibit 1 for identification.]

Q. 46. I note on Smith Exhibit 1 for identification a statement in the lower left-hand corner to the effect that Mr. Smith phoned a description of the disclosure of this exhibit to L.W.C. Jr. at du Pont Viscoloid, Arlington, New Jersey, and asked him to disclose it to Mr. Willard Crane. Is that [*10*] the phone call to which you have had reference in your testimony? *A.* Yes.

Q. 47. Do you know Mr. Willard Crane? *A.* Yes.

Q. 48. Who is he? *A.* He is a research engineer employed by E. I. du Pont de Nemours at their Plastics Department at Arlington, New Jersey.

Q. 49. In view of the date appearing on Exhibit 1 for identification, namely, March 12, 1936, is your memory refreshed as to the date of your telephone call with Mr. Smith? *A.* It is not, but I have no doubt but what the phone call was on March 12, 1936.

* * * * * *

[*11*] *Q.* 61. Did you, subsequently to March 12, 1936, make any such structures as that described in Exhibit 1 for identification, and to be specific, did you, subsequent to March 12, 1936, make any laminations including one or more sheets of a transparent material such as glass to which there was affixed a layer of material which included a light-polarizing portion and a non-polarizing portion, the light-polarizing portion being positioned within and spaced from the edges of the layer? *A.* Yes.

Q. 62. Will you describe how you made that lamination? [*12*] Will you tell us approximately when you first made such a structure? *A.* The first such structure produced was not exactly a lamination. A sheet of polarizing material was cut to a desired shape and size and laid in a mold. Around the sheet was poured a quantity of methyl methacrylate monomer, and this material was permitted to polymerize to a solid in such a way that it provided for the polarizing sheet a completely surrounding envelope which would protect it and at the same time provide a rigid structure such as a lamination.

Q. 63. When was such a structure made first? *A.* In March, 1936.

Q. 64. Subsequent to your telephone conversation with Mr. Smith? *A.* I am not sure.

Q. 65. Do you have any record which would indicate when such a structure was first made? *A.* Yes, I have.

Q. 66. Can you produce it? *A.* Yes.

By Mr. Brown: Let it appear on the record that the witness produces a notebook which bears on its face the notation "Private" and the dates "February 26, 1936 to September 12, 1936".

Q. 67. Does this notebook contain material relating to matters other than the subject matter of this interference? *A.* Yes, it does.

Q. 68. Does it contain material which you are not free to divulge to me? *A.* Yes, it does.

Q. 69. Will you now refer to the book and see if you can locate the report of the first production of a device such as you have just described in your testimony? *A.* I find on page 16 a record of my first having made such a structure as just described.

Q. 70. What is the date of that record? *A.* March 12, 1936.

Q. 71. That is the same date as appears on Exhibit 1 for identification, is it not? *A.* Yes.

* * * * * *

[*14*] *Q.* 93. Is methyl methacrylate a vinyl resin? *A.* I don't know.

Q. 94. Are you able at this time to produce any of the material made by you on March 12, 1936, and described in Exhibit 2? *A.* No.

Q. 95. Why not? *A.* It has all been destroyed.

Q. 96. Do you know whether it was destroyed prior to November 12, 1940? *A.* Yes, it was.

* * * * * *

[*15*] *Q.* 100. Can you tell us over what period of time, approximately, you worked on the development of devices of this kind, and can you tell us whether any structures generally similar to that described in Exhibit 2 were adhesively bonded by you to glass or to other transparent materials?

A. I did work on this type of structure from March, 1936, until the fall of 1937. During the early part of this period most of the structures made involved the use of plastic sheets as supporting elements, whereas in the latter part of this period, specifically in September, 1937, I made some laminations of plastic sheets, a portion of the area of which was polarizing and a portion non-polarizing, between two glass plates.

* * * * * *

Q. 103. Will you produce photostats of these pages? *A.* I produce photostats of pages 17 and 18 of the same book written and signed by me on March 13, 1936, and witnessed by Mr. Beaton March 16, 1936.

By Mr. Brown: I offer in evidence as Exhibit 3 photostatic copies of pages 17 and 18 produced by the witness, and ask that they be so marked.

[Received in evidence and marked Smith Exhibit 3.]

* * * * * *

[*16*] *Q.* 105. Is the work which is referred to at the top of page 17 work done at your suggestion, or is that merely a report of work as to which Paggi advised you? *A.* That is a record of work done by Paggi independently, so that I had nothing to do with it except in so far as I was interested in the result.

By Mr. Brown: Under these circumstances may it be understood that the offer of Exhibit 3 includes only the subject matter beginning at the middle of page 17 under date of March 13, 1936 and including all of page 18.

Q. 106. Now page 18 of Exhibit 3 refers to a slightly different method of producing a product such as is shown in the sketch in the middle of Exhibit 2. Is that correct? *A.* Yes.

Q. 107. And am I correct in understanding that this precise method was suggested by Mr. Serrell? *A.* Yes.

* * * * * *

[*18*] *Q.* 128. You mentioned earlier in your testimony that in [*19*] 1937 you made laminations between glass of a foil or film which was in part polarizing and in part non-polarizing. Is that correct? *A.* Yes.

Q. 129. Can you produce any of those laminations? *A.* Yes. Here they are.

[The witness produces six laminations.]

Q. 130. Have you any way of telling when these laminations were made? *A.* Yes. Each one is scratched with a date on the glass surface.

Q. 131. I hand you one of the laminations and ask you if you can tell me when that was made. *A.* This lamination was made on the 15th and 16th of September, 1937.

Q. 132. Did you sign it and scratch the date on it on that date? *A.* On the latter of the two days.

Q. 133. On the 16th of September? *A.* Yes.

Q. 134. Where has it been since that date? *A.* It has been continuously in my possession.

Q. 135. I notice that a portion of the lamination has been broken away, leaving exposed what appears to be a film of some plastic material. Is that correct? *A.* That is correct.

Q. 136. Is that the film which is partially polarizing and partially non-polarizing? *A.* Yes.

Q. 137. What material is that? *A.* Chiefly cellulose acetate.

Q. 138. How did you make the bond between the cellulose acetate film and the glass disks? *A.* By means of an adhesive comprising Gelva, which is a polyvinyl acetate, plasticized with, I believe, diamyl phthalate.

Q. 139. Was the plastic sheet cut from a larger sheet? *A.* *A.* Yes.

Q. 140. Was it cut before the lamination was made or after the lamination was made? *A.* Before the lamination was made.

Q. 141. Is it substantially the same size as each glass disk of the lamination? *A.* Yes.

[*20*] By Mr. Brown: I offer the lamination produced by the witness in evidence as Smith Exhibit 6.

[Received in evidence and marked Smith Exhibit 6.]

Q. 142. I show you another one of the laminations, and ask you if you can tell me when that was made. *A.* This one was made on the 4th of October, 1937.

Q. 143. And is it in all essential respects substantially the same as the lamination which you first described? *A.* Substantially.

Q. 144. Now I note that these laminations are round. What were they intended to be used for? *A.* To be used as lenses of spectacles for analyzers in vehicle antiglare systems.

By Mr. Brown: I offer the disk made on October 4, 1937, as Exhibit 7.

[Received in evidence and marked Exhibit 7.]

Q. 145. Will you examine Exhibits 6 and 7 and tell me if any portions thereof still polarize. *A.* Yes. A portion of each.

Q. 146. I notice that when Exhibit 6 is placed over Exhibit 7 the darker portions of the lamination, where they overlie each other, appears to be substantially opaque. What does that signify? *A.* That each of the dark portions is a polarizer in itself and that one is analyzing the other.

Q. 147. Will you examine Exhibits 6 and 7 and tell me whether the polarizing area of the central layer of the lamination merges into the non-polarizing area of that layer. *A.* Yes, it does.

Q. 148. I show you another of the laminations which you have produced, and ask you when that was made by you. *A.* This one was made on and between October 1 and 4, 1937.

Q. 149. That means it was completed on October 4? *A.* Yes.

Q. 150. I call your attention to the narrow, pinkish strip between the dark, polarizing area and the clear, non-polar- [*21*] izing area of the lamination, and ask you what that narrow, pinkish strip is. *A.* That is a band of the central sheet having a lesser degree of polarization than the darker portion and a greater degree of polarization than the lighter portion.

Q. 151. So that as to this lamination it is correct to say, is it not, that the polarizing portion merges with decreasing polarizing effect into the non-polarizing portion of the intermediate film or foil? *A.* Yes, it is.

By Mr. Brown: I offer in evidence as Exhibit 8 the lamination just referred to by the witness.

[Received in evidence and marked Exhibit 8.]

Q. 152. Will you examine the other laminations which you have just produced and state whether they are or are not substantially identical with those in evidence? *A.* They are substantially the same.

Q. 153. Are these six laminations all that you ever made of this kind? *A.* No.

Q. 154. Do you know what became of the others? *A.* They were lost or destroyed.

Q. 155. Have Exhibits 7 and 8 been in your possession since they were made by you? *A.* Yes, they have.

Q. 156. I show you a sheet of paper and ask you if you can identify that. *A.* Yes. This is a pencil memorandum in Mr. Smith's handwriting and showing a sketch in the upper left-hand corner, and it was drawn and written in my presence. I distinctly remember the occasion.

Q. 157. When was it drawn? *A.* On the 13th of April, 1936.

Q. 158. Is that your signature at the bottom of the sheet? *A.* Yes.

Q. 159. When did you sign it? *A*. On that same day.

Q. 160. Was the sheet then in the same condition in which it now is? *A*. It was.

[*22*] *Q*. 161. At whose request did you sign it? *A*. At Mr. Smith's.

Q. 162. Will you please describe the circumstances under which that sheet was written and the substance of any conversation which you may have had with Mr. Smith at the time. *A*. April 13, 1936, was a Monday. I had spent the preceding week-end at Mr. Smith's home, and during that week-end we made a road test of some of the materials which I had produced during the preceding week at Arlington, New Jersey; and on the train, on the 13th of April, while Mr. Smith and I were returning to Newark and Arlington respectively, we discussed the road test which we had made. Mr. Smith said, in substance:

> "You know, Lewis, I wasn't quite satisfied with the road test we had the other night, especially because I found the visibility too low. It's unfortunate that we can't get more light along the right-hand side of the road. As far as seeing the other car is concerned, there's no problem, and I think we have adequate extinction for glare elimination of the other car's headlights. What would you think of this idea for a visor: Say we have a visor which is installed between the driver's eyes and the windshield, in which the upper left-hand section has the cut-off needed for extinguishing the lights of oncoming cars and the lower right-hand section has less cut-off but higher transmission for better visibility down the road and especially along the right-hand shoulder, like this:"

Mr. Smith then made a sketch in pencil which is not on this sheet I now have in my hand but which less completely disclosed this structure, and immediately thereafter, while we were still on the train, he made this written disclosure and sketch which I now hold and which I witnessed at the time.

[*23*] By Mr. Brown: I offer in evidence as Exhibit 9 the sheet to which the witness has referred, and ask that a photostatic copy be substituted for the original.

[Received in evidence and marked Exhibit 9.]

Q. 163. I show you another sheet and ask you if you can identify that. *A.* Yes. This is the first sketch which Mr. Smith made on the train on the 13th of April, 1936.

Q. 164. Did you see that sketch while you were on the train? *A.* Yes.

Q. 165. What are the round circles which appear in pairs in the rectangular figure? *A.* They represent pairs of headlights of oncoming automobiles as they would appear in different positions through a visor, which was represented by the rectangular enclosure.

Q. 166. Can you recognize the handwriting on the sketch which you have in your hand and on Exhibit 9? *A.* Yes. In both cases it is Mr. Smith's.

Q. 167. What do the figures in the upper left-hand corner of the visor of the sheet which you have last referred to mean—and I have reference to ".003". *A.* The ".003" refers to the thickness of the polarizing foil which Mr. Smith considered would be desirable in that portion of the visor.

Q. 168. And what do the figures ".0015" in the lower right-hand corner of the visor represent? *A.* They represent the thickness of the polarizing foil at that point of the visor.

Q. 169. Now was it your understanding that the thickness of the visor was to taper gradually from .003 to .0015 inches, or was there to be a sudden diminution in thickness at some point across the width of the visor? *A.* I had no understanding in this regard.

Q. 170. I call your attention now to Exhibit No. 9 and ask you whether you had any understanding as to the point under discussion in connection with the visor sketched and described in that exhibit. *A.* Yes. The sketch clearly shows, [*24*] and the disclosure describes, that one way in which the gradation of polarizing density might be accomplished in such a structure would be by using a single layer of polarizing foil all over the whole visor, plus a second layer of polarizing foil over one portion, as for example the upper left-hand portion. The disclosure states that this could also be done by having a sheet of the same polarizing concentration but tapering from thin at the lower right to thick at the upper left for all or part of the sheet.

Q. 171. So that am I correct in understanding that with respect to Exhibit 9 and the discussion in connection therewith Mr. Smith made two suggestions? One was to employ a polarizing sheet of tapering thickness and the other was to employ a plurality of superimposed polarizing sheets, one sheet being of less area than the other? *A.* Yes.

By Mr. Brown: I offer in evidence the unsigned sketch identified by the witness as being in Mr. Smith's handwriting and as having been shown to him by Mr. Smith on April 13, 1936, as Exhibit 10.

[Received in evidence and marked Exhibit 10.]

Q. 172. Are the two sheets in evidence as Exhibits 9 and 10 all of the sketches and disclosures made by Mr. Smith to you on the train on April 13, 1936? *A.* Yes.

Q. 173. Now do you find in your notes any reference to subject matter such as is disclosed, for example, in Exhibit 9? *A.* Yes. On page 52 of my notebook under date of April 13, 1936, I find that on that date I had the idea of making polarizing film of tapering thickness, such as was described in the Smith Exhibit 9, by extruding the film-forming compound from a slot-like orifice, the jaws of which had been adjusted in such a way as to permit a greater thickness of material to pass at one side than at the other.

Q. 174. Can you produce a photostatic copy of page 52 of your notebook? [Witness does so.]

[*25*] *Q.* 175. Can you tell me when this page was written by you? *A.* On April 13, 1936.

Q. 176. Was this after your discussion with Mr. Smith on the train? *A.* Yes, and on the same day.

Q. 177. What is the name which appears in the left-hand margin of the page? *A.* That of Wilbur B. Rodda.

Q. 178. Who is he? *A.* He is an employee of E. I. du Pont de Nemours at their plant at Arlington, New Jersey.

Q. 179. Why did he sign this page? *A.* He did so at my request.

Q. 180. When? *A.* On April 14, 1936.

By Mr. Brown: I offer in evidence photostat of the page referred to by the witness as Exhibit 11.

[Received in evidence and marked Exhibit 11.]

Q. 181. What was your understanding as to how the visor shown in Exhibits 9, 10 and 11 was to be employed? *A.* Mr. Smith and I discussed two ways of employing polarizing elements of varying transmission such as those described in Exhibits 9, 10 and 11. One way was to use the polarizer as an independent viewing visor. The other way was to incorporate the polarizing element in a plastic adhesive layer in a windshield in the manner which I have previously described in connection with the discussion of Exhibit 1 for identification.

Q. 182. Did you experiment during 1936 and 1937, or did you direct experiments on behalf of Polarized Lights and Mr. Smith, with other materials as the transparent plastic than methyl methacrylate? *A.* Yes.

Q. 183. What other materials? *A.* Cellulose acetate, cellulose nitrate, vinylite, ethyl cellulose and Formvar.

Q. 184. Did you make these experiments? *A.* Yes.

Q. 185. Did anyone else help you? *A.* Yes. I was assisted by Louis Paggi.

Q. 186. Is that the same person whom you previously referred to as "Paggi"? *A.* Yes.

[*26*] *Q.* 187. Can you tell me over what period these experiments extended, roughly? *A.* Roughly, from March 12, 1936, until February, 1938. During this period we also made laminations of polarizing foil to glass plates.

Q. 188. You have already referred to a road test which you ran with Mr. Smith on the week-end of April 11 and 12, 1936. Can you tell me whether you made the headlight disks and visors which were tested in that road test? *A.* Yes. They were made on April 9 and 10, 1936.

Q. 189. Do you have any record in your notes of this? *A.* Yes. On pages 49 and 50 of my notebook.

Q. 190. Will you produce photostatic copies of those pages? [Witness does so.]

Q. 191. When were those pages written? *A.* Page 49 was written on April 9, and page 50 on April 10, 1936.

Q. 192. And they represent reports of work done by you and by Mr. Paggi? *A.* Yes.

Q. 193. And they were written by you? *A.* Yes.

Q. 194. And witnessed by Mr. Rodda? *A.* Yes.

By Mr. Brown: I offer these photostats in evidence as Exhibit 12.

[Received in evidence and marked Exhibit 12.]

Q. 195. Can you produce any samples of polarizing sheeting which tapers in thickness across its width and which was made by extrusion? *A.* Yes, I can.

> [Witness produces a great number—more than seventy-five—of sheets approximately 12 x 10 inches in area.]

Q. 196. Can you tell me when these particular sheets were made? *A.* Yes. They were made on June 1, 1937.

Q. 197. Were these the first sheets of this type made by you? *A.* No.

Q. 198. Do you know what became of the earlier sheets? *A.* They were saved for a long time, and after the consoli- [*27*] dation of Polarized Lights and Polaroid Corporation they were disposed of as being probably of no further value.

Q. 199. Were these sheets which you have produced made by you or under your direction? *A.* Yes.

Q. 200. Where have the sheets been since they were made in June, 1937? *A.* They have been stored in my trunk at my home.

By Mr. Brown: I offer in evidence one of the sheets produced by the witness as Exhibit 13.

[Received in evidence and marked Exhibit 13.]

Q. 201. Do you find in your notes any reference to the manufacture of sheeting varying in thickness? *A.* Yes, a great number of references.

Q. 202. Will you produce a photostatic copy of one of those pages of your notebook?

[Witness produces a photostat of page 58.]

Q. 203. When was this page written? *A.* Probably on April 17, 1936, but I cannot be sure of a date earlier than April 20.

Q. 204. Was it written by you? *A.* Yes.

Q. 205. Does it refer to sheeting made by you or under your direction? *A.* Yes.

Q. 206. Who witnessed this page? *A.* Louis Paggi.

Q. 207. On what date? *A.* April 24, 1936.

Q. 208. At whose request? *A.* At my request.

By Mr. Brown: I offer the photostat produced by the witness in evidence as Exhibit 14.

[Received in evidence and marked Exhibit 14.]

Q. 209. In connection with the disclosure to you by Mr. Smith on April 13, 1936, of a sheet of material which tapered in thickness across its width, did Mr. Smith make any disclosure as to how he thought that sheet should be made? *A.* No. Later on that same day he called me on the telephone and told me that he had made such a sheet.

Q. 210. Did he tell you how he had made it? *A.* Yes. By [*28*] scraping down one edge of the sheet to only a fraction of its original thickness.

Q. 211. Did Mr. Smith tell you what the result of this scraping was? *A.* Yes. He told me that the section of the sheet made thin in this manner showed notably less polarization extinction and notably higher transmission than the rest of the sheet.

* * * * * *

[*31*] *Q.* 237. Can you tell me a date at which you are positive you saw Exhibit 20 for identification? *A.* Yes. I can't be positive of a date earlier than February, 1938.

* * * * * * [*32*]

DEPOSITION OF ROBERT P. BLAKE.

Robert P. Blake, being first duly sworn, deposes and says in answer to interrogatories propounded by Mr. Brown:

Q. 1. Will you please state your name, your age, your residence and your occupation. *A.* Name, Robert P. Blake; age, thirty-two; residence, 21 Chauncy Street, Cambridge, Massachusetts; and occupation, research engineer.

Q. 2. With what company are you associated? *A.* With Polaroid Corporation.

Q. 3. How long have you been employed by Polaroid Corporation and its predecessors? *A.* Since September, 1933.

Q. 4. What have been your duties generally during the period of your employment? *A.* Working on development of processes.

[*33*] *Q.* 5. And in connection with what types of mate-

rials? *A.* In connection with various types of polarizers, chiefly.

Q. 6. With respect to the period commencing April 1, 1938, can you tell me what you were doing at that time and for some months thereafter? *A.* I was working on the development of formula and process of making a thin polarizing material which was intended to be supported on another material during use.

Q. 7. What was this thin suspension intended primarily to be used for? *A.* It was intended for various types of optical polarizing filters, headlight polarizers and visors.

Q. 8. Were these thin suspensions of polarizing material produced on transparent supporting bases? *A.* Yes.

Q. 9. The base was of what material? *A.* Chiefly cellulose acetate sheet, and also glass.

Q. 10. Can you produce samples of suspensions made by you subsequent to April 1, 1938, and having glass as the supporting material? *A.* Yes.

[Witness produces three samples.]

Q. 11. Can you mark these samples in such a way as to enable us later to identify each, and will you please include in your marking the date on which the sample was made? [Witness marks the three samples.] *A.* I have marked one sample with the No. 847 and the date 6/30/38. The number 847 is a run number which enables me to identify the sample, and the numbers 6/30/38 are the date on which the sample was made by me. I have marked a second sample with the run number 871 and the date 7/11/38, and the third sample with the run number 1253 and the date 8/16/38.

Q. 12. Do you have records which enable you to tell what the sample marked "847" comprises? *A.* Yes.

Q. 13. What is the suspension in the sample marked "847" made of? *A.* It is a suspension of iodosulphate of cinchonidine crystals in a matrix of vinyl acetal.

[*34*] *Q.* 14. How about the sample marked "871"? *A.* Sample 871 is a suspension of the same crystals in the same plastic, differing only from No. 847 in that a different combination of solvents was used in its manufacture.

Q. 15. How about the suspension 1253? *A.* 1253 is a suspension of the same crystals in the same plastic. In this case a small amount of benzophenone was added.

By Mr. Brown: I offer in evidence the sample marked "847" and made by the witness on June 30, 1938, as Exhibit 21.

[Received in evidence and marked Exhibit 21.]

By Mr. Brown: I offer in evidence the sample marked "871" and made by the witness on July 11, 1938, as Exhibit 22.

[Received in evidence and marked Exhibit 22.]

By Mr. Brown: I offer in evidence the sample identified as "1253" and made by the witness on August 16, 1938, as Exhibit 23.

[Received in evidence and marked Exhibit 23.]

Q. 16. Each of these exhibits appears to have a transparent but slightly darkened portion covering the main body of the exhibit, and a substantially opaque border along one or two sides of the transparent but slightly darkened portion. Can you tell me what the substantially opaque border comprises? *A.* It comprises an unoriented area of the crystals in the plastic matrix.

Q. 17. And what does the transparent but slightly darkened area comprise? *A.* That is an oriented area.

Q. 18. And between these two areas there is a band which merges from the transparent to the opaque area, is there not? *A.* Yes.

Q. 19. What does that band comprise? *A.* That band comprises a varying degree of orientation between the disoriented and the fully oriented areas.

Q. 20. Beyond the unoriented areas there appears to be a

[*35*] smear of some kind. Can you tell me what causes that? *A.* When the sample was made I scraped off a further section of disoriented material, using a spatula for the purpose, which left the smeared-appearing area.

Q. 21. So that when these samples were first made, the portions of the glass then covered by the unoriented crystals in suspension were substantially greater and wider than they now are? Is that correct? *A.* That's correct.

Q. 22. Now are these samples which you have produced the complete samples as they were originally made, or only portions thereof? *A.* Those were only portions of the samples as made.

Q. 23. Do you have any complete, coated glass plate as originally made? *A.* Yes.

[Witness produces a glass plate approximately 10 x 14 inches in size.]

Q. 24. Can you tell me whether, on the plate that you have just produced, the disoriented and opaque border extends along all four sides of the oriented suspension of crystals? *A.* Yes, it does.

Q. 25. And in using the spatula to remove portions of the disoriented border, you have removed portions from three sides of the plate, have you not? *A.* Yes.

Q. 26. Was that condition true also of Exhibits 21 to 23 when they were first made? *A.* Yes.

Q. 27. Is it correct to say, with respect to Exhibits 21 to 23, inclusive, that when they were first made they comprised a glass plate upon which there was deposited over substantially its entire area a suspension of polarizing crystals in a plastic matrix, and in each case the crystals around the border of the suspension extending in from the edge of the glass plate a distance of approximately at least one inch were unoriented and formed an opaque border while the crystals in the suspension overlying the remainder of the

[*36*] plate were oriented, forming a polarizing transparent layer? *A.* That is right.

Q. 28. And is it correct to say also in each case that the central polarizing layer merged with gradually decreasing transparency and gradually lessening polarizing effect into the surrounding border? *A.* Yes.

Q. 29. Are the three samples which you have produced the only samples of suspensions of this kind made by you subsequent to April 1, 1938? *A.* No.

Q. 30. Can you tell me approximately how many of these you made and over what period of time? *A.* I made hundreds of similarly coated plates over a period extending up until about the middle of 1939, and since that time I have occasionally made additional, similarly coated plates.

Q. 31. Do I understand from your last answer that you devoted most of your time to this work from April, 1938, until the middle of 1939? *A.* Yes.

Q. 32. Do you now have available all of those several hundred samples which were made? *A.* Not all. I have many.

Q. 33. Can you tell me what happened to the ones that you do not have? *A.* Most were used in connection with further experimentation on stability, laminating, etc. Others were merely studied and then destroyed, and others were processed into finished filters.

Q. 34. Did you ever laminate cover plates to coated glass plates such as Exhibits 21 to 23? *A.* Yes.

Q. 35. What did these cover plates comprise? *A.* The cover plates comprised a second piece of glass.

Q. 36. How was this glass bonded to the coated plates? *A.* By various methods. One method was to use a bonding sheet material which, when assembled between the coated and uncoated pieces of glass and subjected to heat and pressure, formed a bonded assembly. Other materials used were simply liquid plasticizers poured between the coated and un- [*37*] coated plates, after which the assembly was subjected to heat and pressure.

Q. 37. Was the work which you did, commencing in April, 1938, and having to do with Exhibits 21 to 23, inclusive, and similar products, the result of instructions received by you from your superiors in Polaroid Corporation? *A.* Yes.

Q. 38. Do you know whether the laminations of these polarizing films which you have described were tested to see whether their optical properties were affected by the lamination? *A.* Yes, they were.

Q. 39. Were satisfactory laminations produced prior to the summer of 1939? *A.* Laminations were produced which were satisfactory except when employed under unusual conditions which would subject the polarizing material to agencies not ordinarily found in commercial use.

Q. 40. As a result of your work in the production of polarizing materials generally, and specifically as a result of your work in connection with the production of such coated plates as Exhibits 21 to 23, can you state whether a suspension of irregularly oriented polarizing crystals in a transparent carrier, in which the crystals are present in the concentrations usually employed in the production of light polarizers, is or is not transparent? *A.* Where the crystals are irreguuarly oriented the transmission will be low.

Q. 41. That means that the suspension will have a low transparency. Is that correct? *A.* That is right.

Q. 42. Is that, for example, illustrated in the dark borders which remain on Exhibits 21 to 23, inclusive? *A.* Yes.

Q. 43. What can you say as to the polarizing properties of such irregularly oriented suspensions? *A.* If there is no regular orientation, light transmitted will be of substantially the same intensity when viewed through an analyzer irrespective of the position of the axis of the analyzer.

Q. 44. And in ordinary polarizers the light transmitted through the combination of the polarizer and analyzer va-

[*38*] ries in intensity as the axis of the analyzer is rotated with respect to the polarizer. Isn't that correct? *A.* Yes, that is correct.

* * * * * * [*59*]

DEPOSITION OF ROBERT A. SMITH.

Robert A. Smith, being first duly sworn, deposes and says in answer to interrogatories propounded by Mr. Brown.

Q. 1. Will you please state your name, your age and your residence. *A.* Robert A. Smith;—fifty-seven. My home residence is Mahwah, New Jersey. I am living temporarily at the staff house quarters at the Arkansas Ordnance Plant, Jacksonville.

Q. 2. What is your occupation? *A.* At the present time I am general manager for the Arkansas Ordnance Plant. My normal occupation is the owner of the firm of Smith and Serrell.

Q. 3. Was John J. Serrell formerly a member of Smith and Serrell? *A.* John J. Serrell was my partner until he died in January, 1939.

Q. 4. Do you know a Mr. B. Fred Pine? *A.* Mr. Pine is an employee in my ordinary business—Smith and Serrell, Newark, New Jersey.

[*60*] *Q.* 5. Are you familiar with the subject matter involved in this interference? *A.* Yes.

Q. 6. Are you the applicant named in the interference? *A.* I am.

Q. 7. Will you please state when you first became interested actively in the field of polarized light, and state briefly your experience in connection with light polarizers. *A.* I became informed on polarized light during my college course and I applied myself actively on polarized light work starting in 1921, at which time I conceived an invention for the use of polarized light in automobile headlighting. From that time up to March, 1938,—at which time Polarized Lights, Inc., of which I was president, merged into the Polaroid Corporation,—I was actively engaged in polarized light work during all that time.

Q. 8. What college did you attend and what degree did you receive? *A.* Cornell University, Ithaca, New York. Graduated in 1905 with a degree of ME(EE).

* * * * * *

[*62*] *Q.* 21. Do you know Lewis W. Chubb, Jr.? *A.* I do.

Q. 22. Who is he? *A.* He is my son-in-law.

Q. 23. When did you first meet him? *A.* In the summer of 1932. He came to my house to work under my direction on the development of polarized light and polarizing material. He worked continuously under my direction at my house where I had a small laboratory and subsequently at other places where we had laboratory facilities.

Q. 24. Do you remember whether you had any discussions with Mr. Chubb about polarizing sheets or foils of varying polarizing properties. *A.* I cannot readily give you dates, but we certainly discussed and considered this along with the other polarizing work.

Q. 25. I show you Exhibit 1 and ask you whether you can identify this? *A.* I can. It is a disclosure and memorandum in my handwriting and signed by me on March 12, 1936, the date given on the disclosure.

Q. 26. Can you identify the handwriting of the witness? *A.* The witness is B. Fred Pine and it is in his handwriting, well known to me.

Q. 27. Do you know why he witnessed it? *A.* Because I requested him to.

Q. 28. Can you state whether the sheet Exhibit 1 was in the condition which it now is when Mr. Pine witnessed it? *A.* It was.

Q. 29. Can you state whether you discussed the disclosure of this sheet with anyone other than Mr. Pine? *A.* At the bottom of the sheet is a memorandum in my handwriting showing that I telephoned about 10 minutes after the sign-[*63*] ing and witnessing to Lewis W. Chubb, Jr., and gave him the same description as on the disclosure and asked him to disclose and discuss it with Mr. Willard Crane of the Dupont Company at Arlington, New Jersey.

Q. 30. Do you recall the telephone conversation independently of the memorandum of Exhibit 1? *A.* I do.

Q. 31. Can you state whether you had any discussion with Mr. Chubb, Jr. about polarizers having varying polarizing properties prior to March 12, 1936. *A.* I cannot recall any definite date of such a discussion, but inasmuch as I was working continuously with Mr. Chubb and as we had just such problems in our work there is little doubt that I had some discussions with him on this subject before the date given.

Q. 32. Now on Exhibit 1, there is a reference about the middle of the sheet to "made by a surrounding process to suit the surrounding material". Will you please explain what this refers to? *A.* In the use of various types of plastic the method of handling and sealing them in the form of a surrounding process of handling and sealing has to be adapted to suit the kind of plastic one is using at the time. That is the reason of the note which you have just quoted.

Q. 33. Do you know whether any structures such as are described in Exhibit 1 were actually made? *A.* Generally, yes. Perhaps not of the exact proportions of my rough free-hand sketch.

Q. 34. But structures were made in which a polarizing film was embedded in a sheet of transparent plastic material which completely surrounded the film of polarizing material? *A.* Yes.

Q. 35. And such structures were then laminated to glass plates? *A.* Yes.

Q. 36. Who made those structures? *A.* At the time in question—1936—the structures were made in cooperation with L. W. Chubb, Jr., who was then performing experimen- [*64*] tal and development and completed work under my direction.

Q. 37. Do you know how soon after March 12, 1936, such structures were made by Mr. Chubb? *A.* Probably almost immediately thereafter, as we had the problem before us and were anxious to complete such structures for us in polarized lighting as applied to automobiles.

Q. 38. I show you a sheet and ask you if you can identify that? *A.* This sheet is dated March 16, 1936, and comprises the essence of a telephone call I made to the office of Mr. A. E. Pitcher of the Dupont Company at New York City. While the memorandum does not say so, it was probably given exactly as written to his secretary for transmission.

Q. 39. Does this memorandum serve to refresh your recollection as to when sheets of the type discussed in Exhibit 1 were made? *A.* Yes, it does. There isn't any doubt that the sheet was made on March 16, 1936.

Q. 40. Had you seen those sheets at the time you phoned Mr. Pitcher? *A.* Yes.

Q. 41. Had you examined them to see whether the polarizing portion retained its polarizing properties? *A.* Yes. The memorandum refreshes my memory to show that the results are good in that respect. That does not necessarily mean perfect but it does mean clarity and transmission were good.

Q. 42. Can you state where this memorandum has been since you made it? *A.* The memorandum has been in my private files at my office—Smith and Serrell, Newark, New Jersey.

Mr. Brown: I offer the memorandum in evidence as Exhibit 24.

Q. 43. Can you state very generally how extensive the experiments and investigations, done by you and your assistants in connection with structures as are shown generally in Exhibit 1, were? *A.* The experiments and developments [*65*] were quite extensive and sufficient to produce the desired polarizers for use in our operation of cars equipped with such polarizers as indicated in Exhibit 1.

Q. 44. Did those developments continue sporadically or was the development a continuous one subsequent to March, 1936? *A.* The development was a continuous one.

Q. 45. Do you know how much of Mr. Chubb's time was devoted to that development? *A.* All his time.

Q. 46. Can you state approximately how much of your time was devoted to it? *A.* About half of my time—on the average.

* * * * * *

[*67*] *Q.* 63. Now I show you Exhibits 9 and 10, Exhibit 10 being an unsigned sketch and Exhibit 9 being a sketch and signature, and ask you if you can identify these exhibits? *A.* These were made on April 13, 1936, on the morning train going to Newark, New Jersey, from my home at Mahwah, New Jersey. The first sketch was a rough memorandum on a pad which I usually carry with me and the second more complete sketch was made practically immediately following the first.

Q. 64. Did you discuss these Exhibits 9 and 10 with anyone at the time you made them? *A.* My son-in-law, L. W. Chubb, Jr., was with me on the train and I made the sketches and discussed with him at the same time.

Q. 65. Can you identify his signature on Exhibit 9? *A.* It is his signature, dated April 13, 1936.

Q. 66. Did he sign it at your request? *A.* He did.

[*68*] *Q.* 67. Now with respect to the unsigned sketch, Ex-

hibit 10, what do the figures .003 and .0015 indicate? *A.* These indicated the thickness in inches of the polarizing sheet at the upper left and lower right corners respectively.

Q. 68. And what do the figures 46%-94° in the upper portion of the sketch indicate? *A.* They indicated the percentage of transmission as 46% and indicated what we call the percentage of cut-off 94%, the latter percent mark being carelessly and incompletely made by me.

Q. 69. That percentage of cut-off is the percentage of transmission of crossed sheets? *A.* It is the percentage of cut-off or light extinction of 2 crossed sheets used in accordance with our standard method prevailing at that time. It is not an absolute measure but comprises a rough and ready and quick means which we used in our work.

Q. 70. What do the figures 90%-50% in the lower right hand corner of the sketch indicate? *A.* This indicated 90% transmission of normal light and 50% cut-off of normal light, these being different from the upper left hand corners because the polarizing sheet was made thinner at the lower right hand corner.

Q. 71. What do the pair of circles in the body portion of the sheet represent? *A.* At this date I cannot be absolutely sure but my remembrance is that they indicated either approaching headlights or more likely the position of the car driver's eyes as positioned with respect to the polarizing sheet of varying thickness and to indicate that the difference of polarization between one eye and the other was comparatively small and, therefore, would not constitute an irritation to the eye.

Q. 72. Now with respect to Exhibit 9, which is the other sketch made by you on April 13, 1936, what does the phrase "flow lines of sheets" indicate? *A.* That indicates the flow lines on the extruded sheets. These lines show very plainly [*69*] on the unmounted sheets and are an indication of the plane of polarization of the polarizing sheet material.

Q. 73. Now this Exhibit 9 shows in the upper portion of the sketch something that appears to be two knobs or extensions from the sheet, can you state what they are? *A.* They are to indicate a means of hanging this visor from the inside of the automobile in front of the driver's eye at a convenient position.

Q. 74. Now can you state whether your discussion of sheets shown in this Exhibit 9 in which the polarizing properties of the sheet varied over the area of the sheet was confined to drop flaps of this kind, or whether you discussed with your assistants the use of such sheets in structures shown, for example, in Exhibit 1 where the polarizing portion is embedded in the windshield itself? *A.* The varying polarizing properties shown on the visor, per the memorandum of April 13, 1936, is and was applicable to any form of visor or complete windshield as desired, and it was so discussed and intended.

* * * * * *

Q. 77. Now do you know whether you or your assistants ever produced polarizing films in which the polarizing properties varied over the film? *A.* We did. Many of them.

Q. 78. Can you state how those were produced? *A.* Some were produced by having the nozzle of the extruding machine with a narrower opening at one side than at the other side. Others were produced by taking a piece of uniform [*70*] thickness polarizing film and scraping down the thickness to a nearly uniform taper from one side to the other, using a safety razor blade for this purpose. Others were produced by superimposing several layers of quite thick film with one edge having a single layer and the other edge having several layers with steps between of intermediate numbers of layers.

Q. 79. Did you personally produce any of these types of varying polarizers? *A.* I personally produced such polarizers by scraping one edge thinner by the use of a razor blade and the others were done under my direction and in many cases while I witnessed the performance.

Q. 80. Who produced the types which were done under your direction? *A.* L. W. Chubb, Jr., with the assistance of the necessary laboratory men of the Dupont Company who would usually operate the extruder.

Q. 81. Can you state when polarizing film of the type you have described was produced with reference, for example, to the dates of the memoranda which we have been discussing? *A.* It was prior to April 29, 1936.

Q. 82. Now that memorandum, Exhibit 20, refers to mounting the polarizing film between plastic or glass, can you state whether such laminations were actually made? *A.* They were.

Q. 83. Can you state whether the adhesive which mounted the polarizing film to the glass was co-extensive with the area of the glass? *A.* It was.

Q. 84. Can you state whether the area of the polarizer including the portions of varying light transmission was ever less than the area of the glass to which it was mounted? *A.* It was.

Q. 85. Can you state whether the film which mounted the polarizer to the glass was transparent or opaque? *A.* Ordinarily, it was transparent.

Q. 86. And that is true also of the glass, is it not? *A.* It is.

[*71*] *Q.* 87. Now Smith's memoranda—or more particularly the letter in evidence as Exhibit 25—refers to ZA-4, what is that? *A.* That was the laboratory designation by the Dupont Company for a material which they were then bringing into performance and which was afterward named Lucite.

Q. 88. That letter also refers to a "J.J.S."—who is he? *A.* That is Mr. J. J. Serrell, my former partner who died in 1939.

Q. 89. Now I show you Smith's Exhibit 13, which is a sheet of a plastic polarizing material and ask you whether you ever saw sheets of that type before. *A.* I have.

Q. 90. Do you know where this particular sheet came from? *A.* This sheet is evidently one of many produced at the Arlington plant of the Dupont Company by and in cooperation with L. W. Chubb, Jr., who was acting under my direction. The sheet was thinner at one edge than at the other and was made by closing the nozzle closer together at one edge than at the other.

Q. 91. Now is that sheet—Exhibit 13—typical of the sheets which are referred to in Exhibit 20 as having been made prior to April 29, 1936. *A.* Yes. The sheet is typical and may even be one portion of the exact material referred to in that memorandum.

Q. 92. I show you also a laminated glass disc which is one of those represented by Exhibits 6 to 8 inclusive produced during the testimony of Lewis W. Chubb, Jr., and ask you if you ever saw anything like this before? *A.* Yes. I have seen many similar discs, which were prepared usually by Lewis W. Chubb, Jr., under my direction, or that of my associate, J. J. Serrell.

Q. 93. That disc comprises 2 glass plates and a layer of plastic material, does it not? *A.* It does.

Q. 94. A portion of the plastic layer is polarizing and a portion is non-polarizing, is it not? *A.* That is correct.

[72] *Q.* 95. The plastic layer is co-extensive in area with the glass disc, is it not? *A.* It is.

Q. 96. And the plastic layer is of strictly uniform thickness, is it not? *A.* It is.

Q. 97. And the plastic layer is transparent, is it not, as to both the polarizing and non-polarizing portions? *A.* It is.

Q. 98. Now were laminations of this type made by you, or under your direction, in more than one way? *A.* There were many ways.

Q. 99. Can you describe some of the ways in which they were made? *A.* They were made by cutting separate sheets to fit together, providing a polarizing and unpolarizing portion; and they were made by taking a polarizing sheet and eliminating or destroying the polarization part of the area. There was also some attempt—not quite so easy or successful—to fill the unpolarizing portion by other than the same film material. While these were made, they were rather difficult to produce—that is, comparatively so.

Q. 100. Can you tell me approximately when structures such as Exhibits 6 to 8 inclusive were made? *A.* In the same general time, but probably slightly later than the disclosures of March and April, 1936.

* * * * * *

[*75*] *Q.* 128. Now, Mr. Chubb testified that acting under your direction, he produced films or layers of light polarizing material embedded in ZA-4 plastic by two or more different methods. Are you familiar with the methods which were used to produce such a structure? *A.* Yes.

[*76*] *Q.* 129. Can you state what these were, please? *A.* One method was to take the monomer of the ZA-4 in a partially polymerized state and submerge the polarizing film in it and then complete the polymerization. Another method was to take 2 sheets of the ZA-4 in the final form and cement them together with some of the monomer surrounding the polarizing film which had been laid on one of the sheets. Such a joining by the use of the monomer constituted an extension of the polarizing film to form a complete layer or film between the 2 outside sheets of ZA-4.

Q. 130. Now can you state whether or not either or both of these methods were employed during the spring and summer of 1936? *A.* Both such methods were successfully employed to produce complete polarizing screens, which we used in the actual performance of polarized headlighting of automobiles.

Q. 131. Am I correct in understanding from your last answer that after the laminations of the polarizing film with the transparent supports were completed, that these laminations were tested optically to determine the properties of the film? *A.* They were. The result was not perfect, but entirely usable in our work.

Q. 132. Is that true of all of the types of products to which you have been testifying, that such tests are made on all of the types? *A.* Yes.

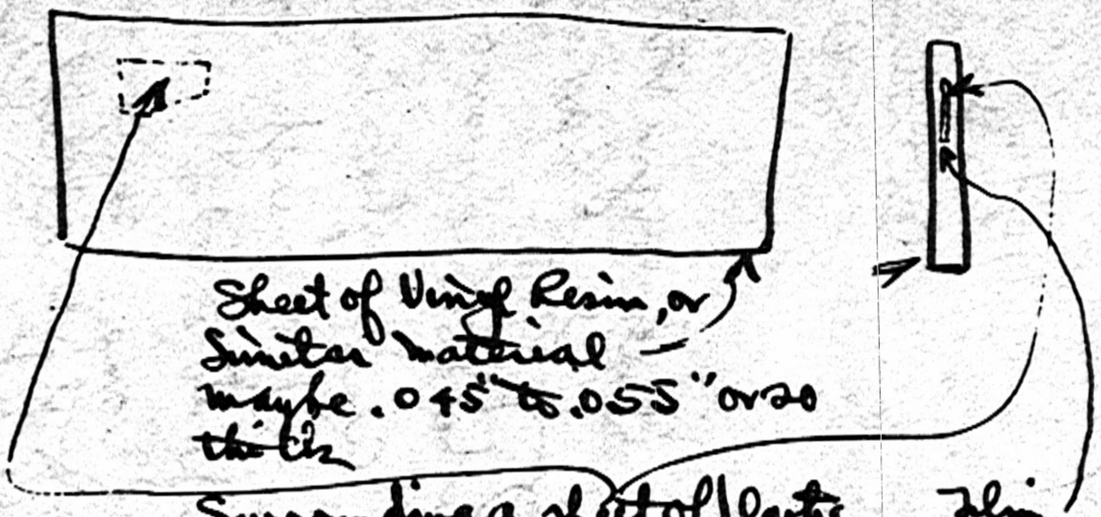
Q. 133. And were those tests made shortly after the products were produced and specifically during the period commencing in March, 1936, and running until the summer of 1937, let us say? *A.* Yes. The tests were made at the nearest convenient date which was usually only a few days after the material was produced.

* * * * * *

Sketch #3

March 12, 1936
conceived Sketched
Signed witnessed
R A Smith 3/12/36
Inventor

SMITH'S INTERFERENCE EXHIBIT 1.



Sheet of Vinyl Resin, or Similar material maybe .045" to .055" or 20 thick

Surrounding a sheet of plastic film containing polarizing material, like our regular polarizing film – made by a surrounding process to suit the surrounding material

Film .0025" to .008" or more thick – approx.

The above composit sheet is then used to form with two sheets of plate glass to form the non shatterable windshield generally as now used. Temperature of lamination to be below destructive point of the polarizing material – considering the time of heating required

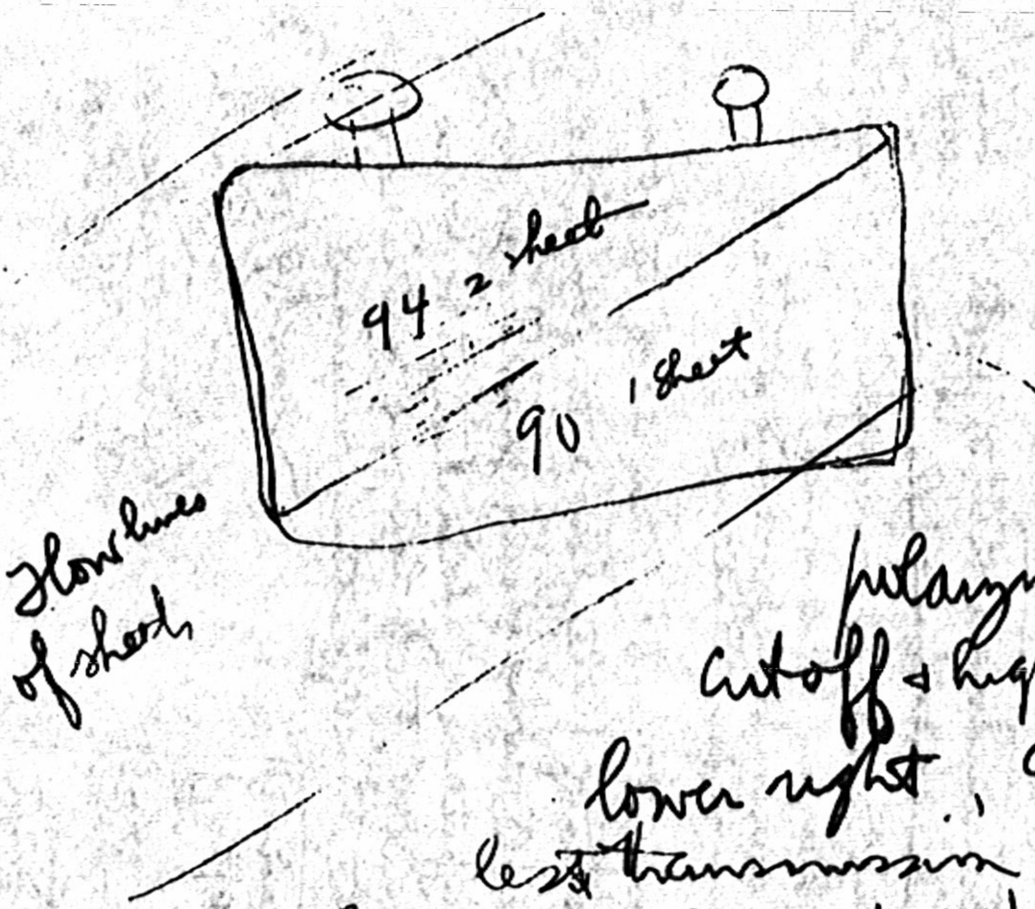
Signed 3/12/36
R A Smith

Explained & witnessed
3/12/36 D Fred Pierce

Shortly after (10 minute) writing the above phoned description to W C Gent DuPont Viscoloid Wilmington Del and asked him to disclose it to Mr Willard Crane of
R A Smith
3/12/36

SMITH'S INTERFERENCE EXHIBIT 9.

4/13/36
On train
8 am



Make vizor with a polarizing sheet having less cutoff & higher transmission at the lower right, and higher cutoff & less transmission at the upper left.

Can be done by superimposed sheets

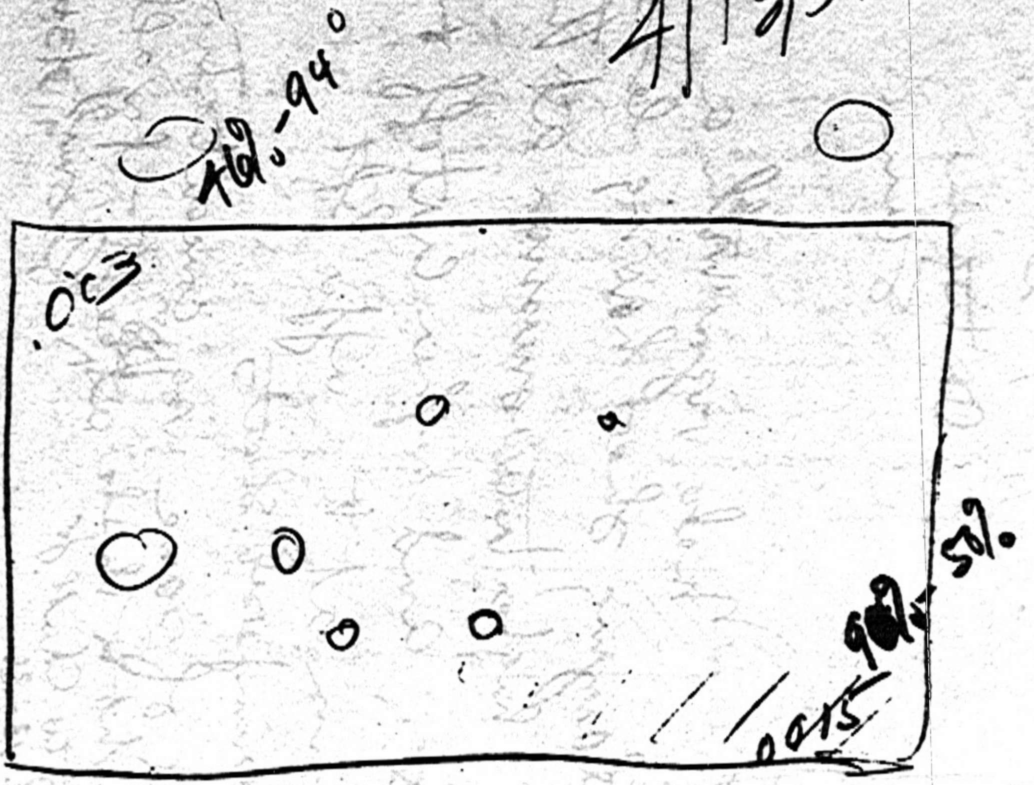
Can be done by sheet of same vsq concentration but tapering from thin at right to thick at left – by all or part of the sheet.

Lewis W. Chubb Jr.
4-13-36

Smith
4/13/36

SMITH'S INTERFERENCE EXHIBIT 16

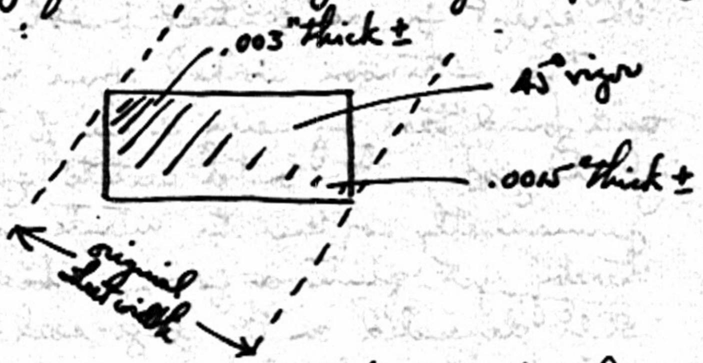
4/13/36



SMITH'S INTERFERENCE EXHIBIT 11.

L.W.C., Jr. 4-13-36.

This morning, had the idea of extruding polarizing film of tapering thickness across the sheet for use in a rectangular visor proposed by R.A.S. which is to have better transmission with less cutoff at lower right than at upper left to simulate a peek around screen but with not as ~~an~~ abrupt an edge. Such sheet would serve as a field of gradually varying opaqueness & not give any abrupt edge anywhere:



Such sheeting could easily be made by the setting of the extrusion jaws to give a tapering slot &, if necessary, winding the film onto a conical roller to care for difference in speed of extrusion across the sheet.

Measured the transmission and cutoff of a number of the recently laminated visors against a Photronic cell. Since all were made from either the film of 3-31 or 4-2-36, it is apparent that there is a considerable loss (around 5%) in the cover sheets. Probably due to acetate haze. (All cutoff measurements against same piece of film).

Written & signed 4-13-36 Lewis W. Chubb Jr.

Wilbur B. Patton
April 14, 1936

SMITH'S INTERFERENCE EXHIBIT 12.

L.W.C., Jr. 4-9-36.

Spent this morning on further attempts at getting a satisfactory method of laminating with vinylite. Nothing proved very satisfactory; there is no adhesion with the acetate and therefore an edge joint must be depended upon. In this respect it acts like ZA-4 but has the further disadvantage that it strains readily. Managed to get an 8½" headlight disc mounted which was OK except for one central bubble.

This afternoon worked some more with nitrate and found that by using a few % tricresyl phosphate plasticizer in the butyl acetate spray, could permanently soften the nitrate's surface and thereby get quite a good adhesion. However, still depended on the edge-seal. By this method, made an 8½" disc and a perfect peek-around visor. Satisfactory for road test.

Today, L.P. worked out a successful method of making polarizing safety glass, using a suggested method of J.J.S. of some months ago; i.e. sticking highly plasticized acetate sheets to sheets of glass and pressing ISQ film between with low heat + pressure. The plasticizer "bites" the film enough to make a good joint. Threw sample on concrete floor + found it to be shatterproof. L.P. suggests same method for laminating between hard, strain-free acetate in place of glass.

Written + signed 4-9-36 Lewis W. Chubb Jr.

Wilbur B. [illegible]
April 14, 1936

SMITH'S INTERFERENCE EXHIBIT 12.

L.W.S., Jr. 4-10-36.

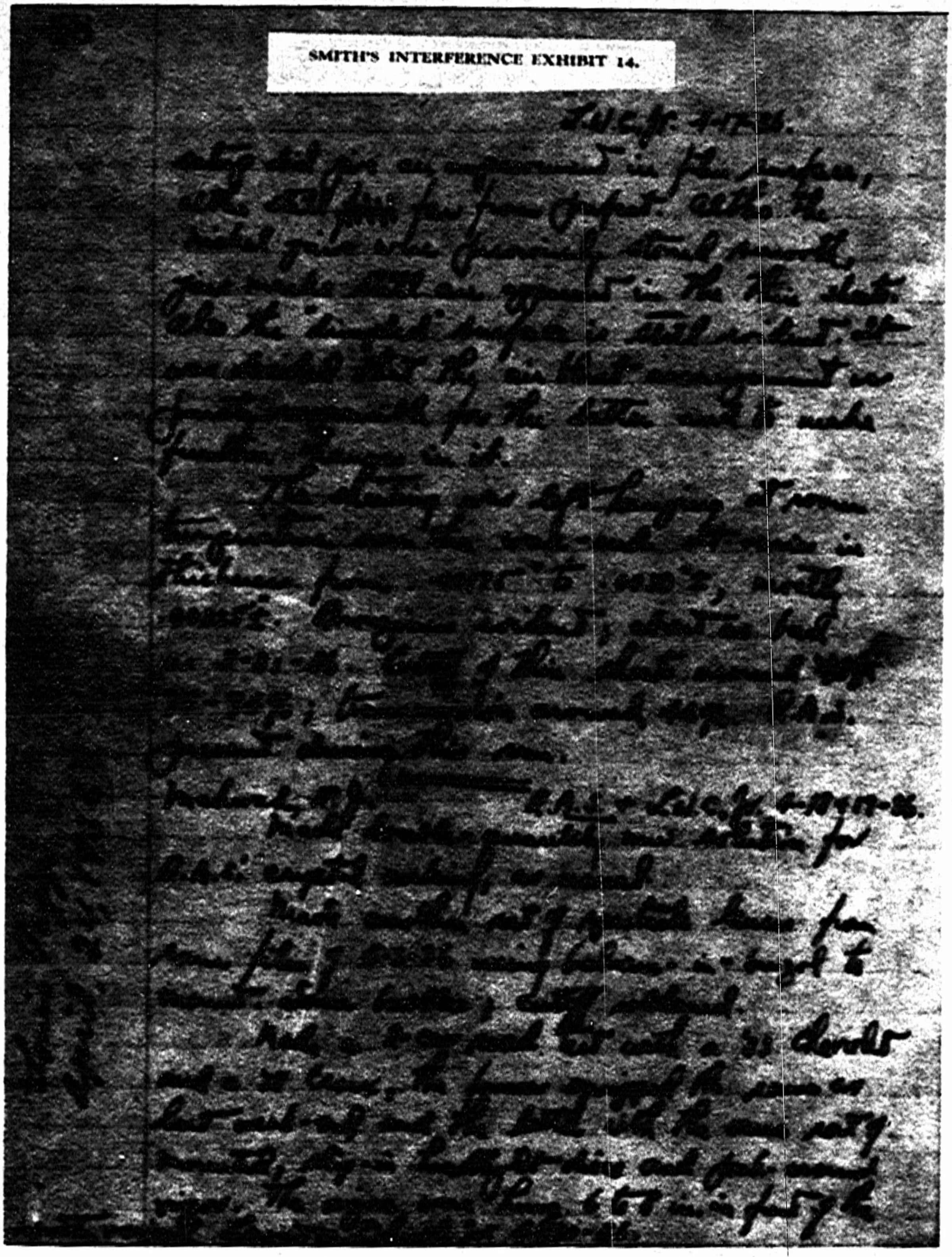
This A.M., worked with L.P. on the 5-ply method of laminating in acetate. Used ordinary plant-production (low plasticizer) acetate for the outside sheets, and high plasticized (dimethyl phthalate or carbamide B-24) sheets for the inner sheets. Since the plant acetate is permanently strained, and the only available high-plasticized stock was too thick, had trouble with strains throughout, but the adhesion, etc., is perfect and the method is successful. Made a peak round visor with each type of high plasticizer sheet. (Dimethyl phthalate will be the one to use since B-24 extremely expensive.) Tried all the various ways of assembling the 5-ply composite, always using low heat and pressure when the HQ sheet is in the sample. This will be a perfectly satisfactory method with strain-free C.A. No new strains are introduced during lamination if the soft sheets are thin enough.

R.A.S. and J.J.S. came over for a discussion with P.D.B., L.P. and I on lamination. Generally decided to go ahead with the acetate laminating in preference to ZA-4, vinylite, nitrate, or other materials.

This afternoon, to get material for an early road test, made another visor + headlight disc with nitrate as on 4-9-36. Perfect job on both. Now have 4 usable discs + 3 (one ZA-4; 2 nitrate) usable visors.

Written + signed 4-10-36 Lewis W. Smith Jr.

Wilbur B. Rabb
April 14, 1936



SMITH'S INTERFERENCE EXHIBIT 14.

SMITH'S INTERFERENCE EXHIBIT 24.

Phoned to Mr Pitchers Office 3/16/36

Please tell Mr Pitcher "That on Friday afternoon, at Arlington, after he left the plant, that the polarizing film was completely encased in ZA4 .015" Sheets with excellent results, total thickness .035"

Clarity and transmission good
Smooth & Stiff enough for our use.
Edges joined ZA4 to ZA4
to make enclosing envelope
~~[illegible]~~

No answer necessary

Polarized Lts
R A Smith

SMITH'S INTERFERENCE EXHIBIT 24.

#7

U.S.P.O.

Robert A. Smith
vs
Hans Sauer

Int. #-7790

Smith Exhibit # 24

Mary Gray
Notary Public

III.

EXCERPTS FROM TESTIMONY AND PROCEEDINGS IN THE DISTRICT COURT DESIGNATED BY APPELLANTS.

* * * * * * *[*19*]

Mr. Brown: I offer in evidence a certified copy of the file wrapper of the Sauer patent.

(Certified copy of file wrapper of Sauer patent was received in evidence and marked Plaintiffs' Exhibit No. 1.)

[*20*] I offer in evidence a certified copy of the file wrapper of the Smith application.

(Certified copy of file wrapper of Smith application was received in evidence and marked Plaintiffs' Exhibit No. 2.)

* * * * * *

I offer in evidence, under our stipulation, a printed copy of the interference testimony for Smith.

(Printed copy of interference testimony for Smith was received in evidence and marked Plaintiffs' Exhibit No. 3.)

I offer as a single exhibit the interference exhibits for the party Smith.

(Interference exhibits for party Smith were received in evidence and marked Plaintiffs' Exhibit No. 4.)

[*21*] I should call Your Honor's attention to the fact that certain of the glass laminations which are in this group of exhibits have been broken as a result of handling in the Patent Office and in transportation. I assure Your Honor

---

* Figures in italics in brackets are page numbers of typewritten transcript of testimony.

that they were not broken at the time they were originally offered.

* * * * * *

I offer under our stipulation a photostatic copy of the opinion of the Board of Interference Examiners in Interference 79,902.

(Photostatic copy of opinion of Board of Interference Examiners in Interference 79,902 was received in evidence and marked Plaintiffs' Exhibit No. 5.)

I offer a photostatic copy of the opinion of the Board of Interference Examiners on petition for reconsideration in the same interference.

(Photostatic copy of opinion of Board of Interference Examiners on petition for reconsideration in Interference 79,902 was received in evidence and marked Plaintiffs' Exhibit No. 6.)

* * * * * * [22]

DIRECT EXAMINATION OF LEWIS W. CHUBB, JR.

Q. 1. (by Mr. Brown). Are you the Lewis W. Chubb who testified for the party plaintiff in the interference Smith v. Sauer? *A.* I am.

Q. 2. In that testimony you produced certain light polarizing sheeting which you stated had been made on or about June 1, 1937, did you not? *A.* Yes, sir.

Q. 3. A sample of that sheeting was introduced in evidence as Exhibit 13 in the interference proceeding. You have been asked to examine the notes which you kept during the period of 1936 and 1937 to see whether you have any record of the production of a five-ply lamination employing such sheets as the sample in evidence as Exhibit 13 in the interference, have you not? *A.* I have.

Q. 4. Were you able to find any such record? *A.* Yes.

Q. 5. Have you your notes with you? *A.* I believe I have them back there.

Mr. Brown: I should explain to Your Honor that these books are considered by the witness to contain subject matter which is confidential as a result of his association during the [*23*] period in question with other persons, and that the books have been constantly in the witness's possession. They are not considered the property of the plaintiff in this action. They have not been available to plaintiff's counsel for examination.

Q. 6. (by Mr. Brown). Do you find any reference in those note books to the manufacture of a five-ply lamination, using sheets such as those disclosed in Exhibit 13 in the interference? *A.* Yes, I do.

Q. 7. On what page, and what is the date? *A.* The page is page 67, and the date is April 27, 1936.

Q. 8. Will you read what it says on that page; that is, the portion of the notes to which you refer? *A.* You would like me to read it word for word?

Q. 9. If you please. *A.* "Removed the P-1031 and P-1032 ten-thousandth sheets from 45 degree Centigrade vault. They have had 96 hours' seasoning. Using P-1031 tens made a five-ply lamination with film of 4-17-36 as usual, except gave two minutes instead of one and a half minutes heat cycle in press to surely stick. O. K., but adhesion to ISQ sheet does not seem as good as with soft stock less seasoned. Kept this for headlight heat test. (4-27-36)."

Q. 10. When were these notes made? *A.* These notes were made on the 27th of April, 1936.

[*24*] *Q.* 11. Do they refer to work done by you on that day? *A.* Yes.

Q. 12. And you have already testified, I believe, that these notes have remained in your possession ever since they were made? *A.* That is correct.

Q. 13. What is P-1031 and P-1032? *A.* Those are designations by which soft cellulose acetate sheeting of two different formulations were known in the plant in which I was working.

Q. 14. What were those sheets used for? *A.* In this case?

Q. 15. In this case. *A.* In this case they were used to include the polarizing sheet.

Q. 16. Did they adhere to the polarizing sheet? *A.* Yes, they did.

Q. 17. Did they act as adhesive layers in the five-ply lamination? *A.* They did.

Q. 18. And how thick were those sheets? *A.* Ten thousandths of an inch, before pressing.

Q. 19. What is the 4-17-36 film? *A.* That has reference to polarizing sheeting made on April 17, 1936, by me.

[*25*] *Q.* 20. Is that the sheet which is referred to in Exhibit 14 in the interference testimony as a sheet varying in thickness from .00175 inches to .0030 inches, plus or minus? *A.* It is.

Q. 21. How large was the area of the polarizing sheet which was incorporated in the three-ply lamination of the polarizing sheet and the two adhesive layers? *A.* Eight and a half inches square.

Q. 22. How large was each adhesive layer before it was put into the press? *A.* Eight and a half inches square.

Q. 23. Did the press have any effect upon the adhesive layers? *A.* Yes, it did. It made them perhaps three-quarters of their original thickness and proportionately larger in area.

Q. 24. So that they extended out around the edge of the polarizing film? *A.* They did.

Q. 25. What were the two additional elements which resulted from the five-ply lamination? *A.* They were sheets of hard cellulose acetate.

Q. 26. How was the five-ply lamination assembled? *A.* The three-ply lamination, which had been formed by enclosing the polarizing film between the two sheets of soft material, was laid on one sheet of hard cellulose acetate. [*26*] Then the second sheet of hard cellulose acetate was laid on the other side of the soft lamination and the unit was pressed together in a hydraulic press under heat and pressure.

Q. 27. How large were the sheets of cellulose acetate? *A.* The hard outside sheets?

Q. 28. The hard outside sheets. *A.* They were nine inches square.

Q. 29. So that they extended slightly beyond—

Mr. Garvey (interposing): Your Honor, I dislike to interrupt on the ground of leading questions, but I do think the witness should be permitted to answer by himself and should not be led into his answers.

The Court: Very well.

Q. 30 (by Mr. Brown). How was the composite polarizing and adhesive lamination positioned on the cellulose acetate base plate? By that I mean, will you describe the relative position of the polarizing portion of that composite sheet with respect to the outer borders of the cellulose acetate base plate? *A.* The centers of each substantially coincided.

Q. 31. Is this test, this lamination which is referred to on page 67 of your notes, the only lamination of this kind that you made? *A.* No, it is not.

Q. 32. Can you tell me approximately over what period you [*27*] made such laminations? *A.* From some date in April, 1936, until approximately the end of 1937.

Q. 33. What were these laminations used for? *A.* They were used for viewing devices and for headlight polarizers.

Q. 33. What was the headlight heat test to which this specific reference refers? *A.* That was a test carried out to show how stable the polarizer in that type of lamination would be when placed close to an electric bulb in a headlight.

Q. 34. What happened when you placed it close to an electrical bulb in a headlight? *A.* In this particular case, after a relatively short period of time the polarizer was injured.

Q. 35. What happened when you used the lamination as a viewing device? *A.* Nothing whatever.

Q. 36. Did the lamination of the adhesive layers to the polarizing film affect the polarizing properties of the film? *A.* No, it did not.

Q. 37. Did the lamination of the hard acetate layers to the adhesive layers affect the polarizing properties of the film? *A.* No.

Q. 38. Can you state whether or not you examined any of [*28*] these laminations to determine their polarizing properties? *A.* I examined every one that I made.

Q. 39. How did you examine it? *A.* By analyzing the light polarized by it with another screen.

Q. 40. Can you state whether or not you actually ran any road tests using these laminations? *A.* Yes, we did.

Q. 41. Can you state approximately over what period such tests were run? *A.* Over approximately the same period as I mentioned, during which I made such laminations, namely April, 1936, to December, 1937.

Mr. Brown: I offer in evidence a photostatic copy of the page of notes, page 67, dated April 27, 1936, to which the witness has been referring.

Mr. Garvey: I have no objection, but may I make the inquiry as to whether or not this is the same book that this witness testified to in the Patent Office?

Q. 42 (by Mr. Brown). Will you answer? *A.* Yes, sir.

Mr. Garvey: This is the same book that you used in testifying before the Patent Office?

The Witness: Yes, sir.

[*29*] (Photostatic copy of page 67 of witness's note

book was received in evidence and marked Plaintiffs' Exhibit No. 7.)

* * * * * *

[*30*] *Q.* 43 (by Mr. Brown). As to the sheets which are in evidence in the interference, and which you have stated were made on or about June 1, 1937, namely Exhibit 13 of the interference proceedings, can you state whether those sheets were or were not made into five-ply laminations such as you have described? *A.* They were.

Q. 44. Do you have any record in your notes so indicating? *A.* I believe I have. The technic in making these laminations was slightly different, but there is a record on page 198 of another note book, which note book was also used for the purpose of taking testimony for the Patent Office, which says specifically that the sheet of June 1, 1937, was made into a number of laminations of the type described before.

[*31*] *Q.* 45. Do those notes describe those laminations specifically? *A.* Yes.

Q. 46. Were they five-ply laminations? *A.* Yes.

Q. 47. What were the outer sheets? *A.* Cellulose acetate, as before.

Q. 48. What were the adhesive sheets? *A.* They were vinyl acetate, which went under the trade name of Gelva.

Q. 49. What was the size of the polarizing film? *A.* Eight and a half inches square.

Q. 50. What was the size of the outer cover plates? *A.* Nine by nine.

Q. 51. What was the size of the adhesive layer? *A.* As originally assembled it was eight and a half by eight and a half.

Q. 52. And after the lamination was made, how big were they? *A.* Slightly bigger than that, possibly eight and three-quarters by eight and three-quarters.

Q. 53. Can you state whether or not it extended out beyond the edge of the polarizing layer? *A.* Yes, it did.

Q. 54. Can you state whether or not it extended out beyond all edges of the polarizing layer? [*32*] *A.* Yes, it did.

Q. 55 Can you state whether or not the two adhesive layers which extended out beyond the edge of the polarizing layer are in contact? *A.* Yes, they are.

Q. 56. Can you state whether or not those adhesive layers completely fill the space between the two outer cover plates? *A.* Not as taken from the laminating press, but after a slight trimming they did.

Q. 57. I mean from surface to surface; I do not mean from edge to edge. *A.* Oh, yes; from surface to surface they did.

Q. 58. As to these laminations which were made, what was the date of that? *A.* The date is—well, the notes were written and signed on the fourth of July, 1937, and I can't tell exactly when the work was done, but within two days previous to that.

Q. 59. Were those laminations tested? *A.* Yes, they were.

* * * * * *

Q. 60. Did you examine them to determine what effect the lamination had upon the polarizing property of the polarizing foil? [*33*] *A.* Yes, I did.

Q. 61. What effect did the lamination have? *A.* None whatever.

Q. 62. Can you tell us how the polarizing sheets, such as that in evidence as Exhibit 13 in the interference, were made? *A.* They were made by extrusion of a plastic mass through a slot-like orifice, the opening of which was regulated to taper in thickness from one side to the other.

Q. 63. Will you examine the exhibit and tell us which is the thin side and which is the thick side? *A.* Yes; the side in my right hand is the thin side.

Q. 64. That is the side on which the label does not appear? *A.* Right!

Q. 65. And does the exhibit now show the thickness of the sheets as extruded? *A.* Substantially. There was some decrease in thickness all over as the solvent dried from it.

Q. 66. But the sheet has not been trimmed, has it? *A.* No.

Q. 67. So far as the length of the sheet is concerned, does the exhibit now show the length of the original extruded sheet? *A.* No. The sheet was several hundred feet in length.

Q. 68. With respect to the laminations as to which you have been testifying this morning, can you state whether you performed that work under anyone's direction? [*34*] *A.* Yes.

Q. 69. Under whose direction? *A.* Under the direction of Mr. Smith.

Q. 70. This work was all done prior to what date? *A.* Prior to March 8, 1938.

Q. 71. With respect to the laminations that you have been mentioning this morning, what is the latest date that you have referred to in your notes? *A.* July 4, 1937.

Q. 72. And these laminations on which you have been testifying this morning were all made prior to that date? *A.* That is correct.

Q. 73. Some of them, as I remember, were made in 1936? *A.* That is correct.

Q. 74. As to those made in 1936, we have not produced any specific sample of polarizing sheeting, have we? *A.* No.

Q. 75. As to the laminations made in 1937 and prior to the July date, you have produced a sample of polarizing sheeting which you say, if I read your testimony correctly, is one sample of a run which actually went into the laminations, is that correct? *A.* That is correct.

Mr. Brown: Now that is all.

Mr. Garvey: No cross-examination.

* * * * * * [*35*]

DIRECT EXAMINATION OF ROBERT A. SMITH.

Q. 1 (by Mr. Brown). Mr. Smith, you are the applicant for the patent involved in this interference, are you not? *A.* I am.

Q. 2. And you have previously testified in this interference, have you not? *A.* I have.

Q. 3. I show you Exhibits 9 and 10 in the interference proceeding and ask you if you recall whether any polarizing film having the physical properties of the film there described was ever made by you or under your direction. *A.* It was made under my direction shortly following this disclosure.

Q. 4. Who made it? *A.* Lewis Chubb, Jr.

Q. 5. Can you tell us, to your knowledge, what was done with that film? *A.* During all this period I was following the work very closely. Every day or two I would go over to the laboratory where Lewis Chubb, Jr., was working and would go over everything [*36*] done, observe and test everything with, not limited facilities but limited by the time available. In other words they were all tested by me to show that they produced the results expected.

Q. 6. Can you state whether any of the film which you say was made shortly after that disclosure was formed into a lamination? *A.* Yes, sir.

Q. 7. Can you describe that lamination? *A.* At the time we were making so-called five-ply laminations, and without reference to the pages of the notes I can say that they were of that type.

Q. 8. What were the outer plies, do you recall? *A.* Usually cellulose acetate.

Q. 9. What were the adhesive layers, do you recall? *A*. Gelva, which is a trade name, I believe.

Q. 10. And the intermediate layer was a layer of this polarizing film? *A*. Yes, sir.

Q. 11. Can you state anything with respect to the size of the outer layers and the polarizing layers when the laminations were made? *A*. In all of these, where you put the comparatively soft Gelva adhesive over the hard film of polarizing material, it would press out and around it, so that almost invariably there was a border outside the polarizing film, which did not [*37*] move or extend appreciably. The border was of the ordinary plastic which could be seen through clearly.

Q. 12. How about the outer two plies of lamination? *A*. They would not move appreciably. They would still remain clear all the way.

Q. 13. When the lamination was finished, do you have any recollection as to what was done with them? *A*. As to these specific things, I could not testify from notes on the particular film, but the procedure through all of these was to show me what had been done and I would examine them in that state. Afterwards they might be trimmed to fit some specific use.

Q. 14. Did this research have any specific goal for its attainment? *A*. We were working exclusively on the problem of eliminating headlight glare.

Q. 15. And in the solution of that problem, what functions do the polarizing films play? *A*. The optical crossing of the film through which one observed, crossed against the polarizing film on the headlight projecting the light against you was, of course, to effectively blank out the glare from the opposing headlights, so that you could see with your own.

Q. 16. So that certain of these films were used as headlight screens? [*38*] *A*. Yes, sir.

Q. 17. And others were used as—

Mr. Garvey (interposing): Your Honor, I dislike to interrupt on account of leading questions, but I believe this is going a little too far. I think the witness should be permitted to answer the questions himself and counsel should not frame the answers for him.

The Court: Very well. It is better to ask questions that the witness will answer, and not just have him say "Yes".

Q. 18 (by Mr. Brown). Will you describe what was done at the tests which are described in the record as "road tests"? *A.* During the entire period when Lewis Chubb, Jr., was doing this work under my direction, I witnessed every road test. That was part of my function, to see that we were progressing toward the goal at which we were aiming, and the road tests consisted ordinarily—and in this case—in placing certain films across the headlights and certain films, all of which would be laminated to protect them, either as part of the windshield or as visors and so forth. In other words, we tested them out under practical road conditions. That is what we meant by "road tests". Many of those tests were conducted in the roads immediately in front of my home.

Q. 19. Now can you state whether any of the laminations which you have described as five-ply laminations were used in [*39*] such tests? *A.* Yes, they were.

Q. 20. Can you state whether they were used in both of the positions that you have mentioned; that is, as headlight screens and shielding visors? *A.* Yes, they were.

Q. 21. Can you state what effect upon the polarizing properties of the film the lamination of that film between two sheets of Gelva and cellulose acetate had? *A.* So long as they were not subject to high heats, and within the length of time that our tests were conducted, there was no effect on the polarizing film.

Mr. Brown: I think that is all, your Honor.

Mr. Garvey: No cross-examination.

Mr. Brown: I would like to call Mr. Blake to offer some testimony on the non-operativeness of the disclosure of the Sauer patent. I do not know whether your Honor wishes to take the testimony and reserve decision.

The Court: I said I would take all the testimony and decide upon it when I decide the case.

* * * * * *

DIRECT EXAMINATION OF ROBERT P. BLAKE.

[*40*] Mr. Garvey: Your Honor, I assume it will be unnecessary to renew my objection.

The Court: You are making it now?

Mr. Garvey: I do wish to make it now. I do wish to renew my objection to any testimony on the ground of the inoperativeness of the Sauer device.

Q. 1 (by Mr. Brown). Are you the Mr. Blake who previously testified in this interference? *A.* Yes.

Q. 2. Where are you employed? *A.* I am employed by the Polaroid Corporation, in the Research Department.

Q. 3. What, generally, have been your duties there, and how long have you been employed? *A.* I have been employed there since September, 1933, and my work has been primarily concerned with the development of process and work connected with polarizing materials.

Q. 4. You have been asked to prepare certain exhibits for demonstration to the Court this morning, have you not? *A.* Yes.

Q. 5. Do you have a glass plate upon which there is a coating of light-polarizing crystals in a transparent plastic carrier, the crystals being oriented to substantial parallelism? *A.* Yes, I have.

[*41*] *Q.* 6. What is the carrier? *A.* You mean of the polarizing crystals, or the complete assembly?

Q. 7. What is the plastic material in which the polarizing crystals are imbedded? *A.* It is vinyl acetal.

Q. 8. And what are the polarizing crystals? *A.* They are iodosulphate of cinchonidine.

Q. 9. And how was the polarizer made? *A.* The crystals are distributed through the mass of a partially dissolved solution of the matrix, the vinyl acetal. Then the mix is spread over the surface of the glass by means of a knife, to orient and to distribute the crystal-containing plastic matrix.

Q. 10. Have you had sufficient experience with suspensions of this kind to be able to state what would happen if heat were applied to the suspension until the plastic melted? *A.* The polarizing crystals themselves would decompose and be rendered non-polarizing.

Q. 11. Do you know of any other way by which the plastic medium can be softened to permit movement of the polarizing crystals within? *A.* If solvent is added to the coating in sufficient quantity, solvent which will not chemically damage the crystals themselves, the mix can be redissolved, and if dilute enough the [*42*] crystals will then be free to move.

Q. 12. How thick is that coating, approximately, do you know? *A.* It is on the order of two ten-thousandths of an inch.

Q. 13. Have you any solvent which you can apply to it? *A.* Yes.

Q. 14. What is the solvent? *A.* It is a normal butyl alcohol.

Q. 15. Will you please place a drop of that solvent upon the coating? *A.* I can remove on the end of a glass stirring rod a drop of alcohol from the bottle and allow it to drop on to the surface of the coated glass.

Q. 16. I will ask you to let that stand until it is dry. Have you had any experience with light-polarizing materials in which other plastics were employed as the carrier of the crystals? *A.* Yes, I have.

Q. 17. What other plastics, to your knowledge, have been employed? *A.* Cellulose nitrate and cellulose acetate are the primary ones, plus a few others, such as vinyl acetate.

Q. 18. Have you in the course of your experience with Polaroid Corporation performed sufficient tests to reach any conclusion as to the effect upon such polarizing materials of [*43*] the application of sufficient heat to soften the carrier to a point where the crystals are free to move? *A.* In every case the polarizing crystals themselves will decompose and become non-polarizing before the plastic is sufficiently soft to permit crystal movement.

Q. 19. At what temperature, approximately, do these polarizing crystals decompose? *A.* That, of course, depends upon the exact chemical composition. Temperatures of the order of perhaps 300 Fahrenheit would be as high temperature as would be necessary to decompose the crystals.

Q. 20. Do these plastic carriers soften appreciably at that temperature? *A.* They will soften, but not to a fluid state.

Q. 21. Are you familiar with commercial polarizers of the foil type, in which suspended crystals in oriented condition constitute the light-polarizing media? *A.* Yes, I am.

Q. 22. As of December, 1937, were any commercial polarizers on the market, to your knowledge, other than the carriers and crystals which you have mentioned, of this type? *A.* Not of this type. There were special crystalline types, but those are the only ones, so far as I know, other than the sheet.

Q. 23. Can you state from your knowledge whether the [*44*] application of a solvent to the other carrier plastics would or would not produce substantially the same result as the result which you may obtain from the test which you have done in court? *A.* That would depend to some extent on the particular plastic and the particular solvent, but in general the results could be expected to be the same.

Q. 24. I note that on the piece of material that you produced there is a border that is opaque. Is that correct? *A.* That is right.

Q. 25. What does that comprise? *A.* That is composed of relatively disoriented crystal suspension in the vinyl acetal.

Q. 26. What renders it opaque? *A.* It is opaque because of lack of orientation of the crystals.

Q. 27. Is that a phenomenon which has been known to the art? *A.* Yes.

Q. 28. What renders the film transparent? *A.* When the polarizing crystals are arranged so that their optical axes are substantially parallel, light will be transmitted by even multiple layers of such crystals.

Q. 29. When the optical axes of the crystals are not parallel and the crystals overlie one another, what happens? *A.* Then the amount of light transmitted will be less [*45*] than when the crystals are all oriented parallel, and the amount of light transmitted will depend on the degree of disorientation or random position of the crystals themselves.

Q. 30. What is the effect of the application of a solvent to films of this kind? *A.* The effect is to dissolve the film and under these conditions it is no longer a set suspension.

Q. 31. What, then, happens to the crystals? *A.* The crystals are then merely suspended in a fluid and are relatively free to move about.

* * * * * *

[*51*] Mr. Brown: All I want to do is offer in evidence the plate on which we performed the test. I would like that to stand until it is dry. Can we mark it and let it stand?

[*52*] The Court: Yes.

Mr. Brown: I am offering this in evidence.

Mr. Garvey: I object to the introduction of it on the ground it is irrelevant and immaterial.

The Court: I will allow it in evidence.

(Glass plate on which alcohol was placed was received in evidence and marked Plaintiffs' Exhibit No. 10.)

* * * * * *

PART OF PLAINTIFFS' EXHIBIT 1.

Dec. 26, 1939.

H. SAUER

2,185,018

POLARIZING STRUCTURE

Filed Dec. 30, 1937

Fig.1

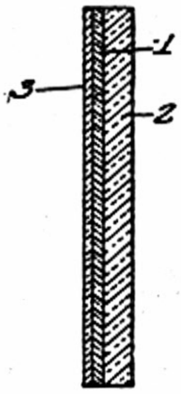


Fig.2

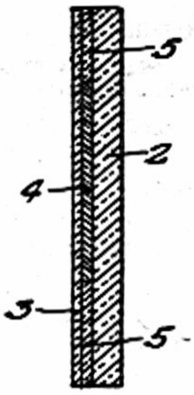


Fig.3

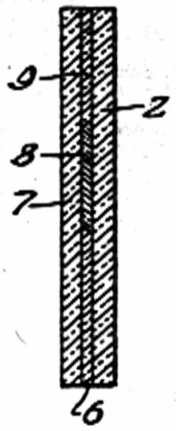


Fig.4

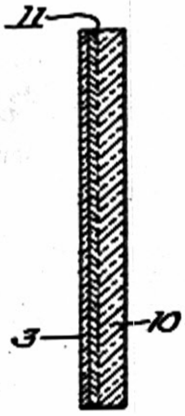


Fig.5

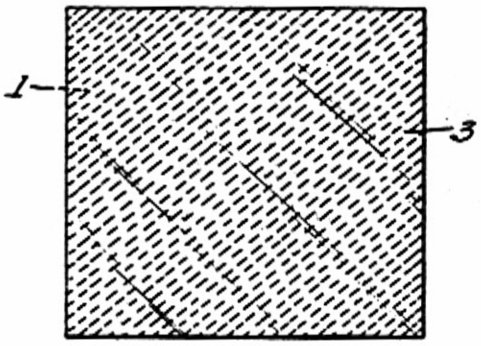


Fig.6

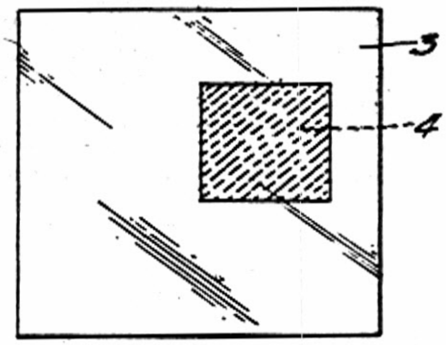
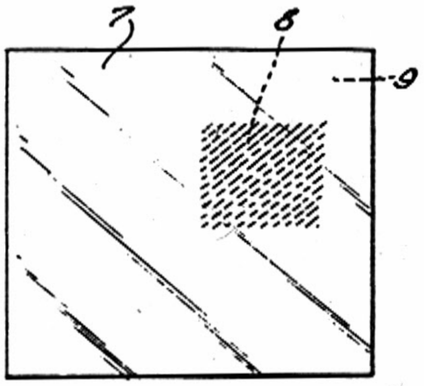


Fig.7



Inventor
Hans Sauer
by B. Singer
Atty.

Patented Dec. 26, 1939 **2,185,018**

UNITED STATES PATENT OFFICE

2,185,018

POLARIZING STRUCTURE

Hans Sauer, Dresden, Germany, assignor to Zeiss
Ikon Aktiengesellschaft, Dresden, Germany

Application December 30, 1937, Serial No. 182,497
In Germany December 31, 1936

1 Claim. (Cl. 88—65)

This invention relates to improvements in polarizing structures.

The invention particularly relates to improvements in polarizing structures of that type which is applied to windows or to windshields of vehicles and the like.

It is an object of the invention to facilitate the application as well as the maintenance of the polarizing agent on the transparent base with which it is to be united.

Another object of the invention is to apply the polarizing material in the form of a filmlike layer or foil to the base by binding it to the base through partial fusion or solution, whereby the union between the base and polarizing filmlike layer is greatly strengthened.

Another object of the invention is to provide a protective layer for the polarizing film or foil to retain the same tightly against the surface of the base and to prevent the atmospheric influence from causing a separation of the elements of the structure.

The invention also has the object of applying the filmlike layer or foil of polarizing material over a portion only of the area of the base and to protect the polarizing foil against the influence of the atmosphere, while at the same time maintaining uniform thickness of the entire structure even at that portion at which the base is not covered by the polarizing film.

It is furthermore an object of the invention to provide a polarizing structure in which the polarizing material in the form of a film or foil is utilized as a bond between two transparent panes of normally shatterable material, whereby owing to the insertion of the non-shatterable polarizing film between the shatterable panes, the entire structure is converted into a non-shatterable structure of the type of the safety glass, at present generally employed in automobiles and for other purposes.

With these and numerous other objects in view, several embodiments of the invention are illustrated in the accompanying drawing to which reference is made in the following specification without, however, thereby limiting the invention solely to the embodiments illustrated and described herein.

In the drawing:

Fig. 1 is a diagrammatic cross-sectional view of a polarizing structure, illustrating a base, a polarizing foil and protective layer;

Fig. 2 is a similar diagrammatic cross-section of a polarizing structure comprising a base which is covered over a portion of its area only with the polarizing foil, while a protective layer is applied over the entire area;

Fig. 3 is a similar cross-sectional diagrammatic view of an embodiment of the invention showing a polarizing film sandwiched between panes of shatterable material;

Fig. 4 is a similar cross-sectional view of a polarizing structure having a base to which the polarizing material is joined by fusion or solution;

Fig. 5 illustrates diagrammatically a front elevation of the embodiment illustrated in Fig. 1 or 3, and the areal extent of the polarizing film being indicated by dotted diagonal lines;

Fig. 6 is a similar diagrammatic front elevation of a polarizing structure of the type shown in Fig. 2, and

Fig. 7 is another front elevation of a modified embodiment of the invention to illustrate the gradual merger of the polarizing layer into a non-polarizing layer surrounding the former.

In the window construction as well as in the construction of windshields for automobiles and the like where it has been desired to eliminate the disturbing effect of light reflection, it had been proposed heretofore to apply a layer of polarizing material usually in the form of a foil to a transparent base. Material of this character is now well known in the art, and may be designated as dichroitic crystalline material.

In order to protect the polarizing layer against the detrimental influences of the atmosphere, it had been proposed heretofore to apply this layer or foil on the inner face of a transparent base, as for instance, a base of glass or highly transparent synthetic resinous material. This application of the polarizing foil on the surface of the base directed away from the light which is to be polarized has the disadvantage that the rays of light before encountering the polarizing foil suffer deflection or fractionation through the transparent base through which they have to pass. In order to eliminate this defect, it also had been proposed to apply the polarizing foil to the outside of the transparent base or to that face which is directed towards the light so as not to interfere with the polarizing effect of the filtering layer by the double fractionation of the light induced by the base.

This application of the polarizing filter to the upper surface of the base, however, exposes the filter itself to the atmosphere, and where the polarizing filter is applied to a windshield, the filter is particularly influenced by the dust or grit stored up by the vehicle. It is also detrimentally affected by the movement of the windshield wiper, etc.

The present invention provides a polarizing structure of this type in which the polarizing filter 1, Fig. 1, is applied to the transparent base 2 in a known way, as for instance, by a suitable adhesive or in some other preferred way, and it is then covered on the outside by an additional transparent protective layer 3 likewise made of transparent material. This protective layer may be a thin layer of solid transparent sheet material which will readily unite with the polarizing filter, or it may be produced in the form of a coating which prior to its application is of liquid consistency and which readily hardens after having been spread over the polarizing filter in the form of a thin film.

While in Fig. 1 as well as in Fig. 5 the polarizing filter 1 is shown as being coextensive with the area of the base, it is obvious that this foil of polarizing material may be applied to a smaller portion of the base, as for instance, to that area thereof which is directly in front of the driver, as indicated at 4 in Fig. 6, and that the protective layer 3 may then be extended over the entire area of the base 2 to seal the edges of the polarizing foil against the atmospheric influences.

The thickness of the structure in the last named case would then be different over that area portion over which the polarizing filter 4 is applied from that portion over which this polarizing filter does not extend. Fig 2 illustrates diagrammatically in cross-section an embodiment in which in spite of the application of a polarizing filter 4 over an area portion only of the base 2, the entire structure may have uniform thickness throughout. In this embodiment of the invention, an intermediate layer 5 of transparent material is directly applied to the base 2 on the outer surface thereof, said transparent intermediate layer leaving, however, uncovered an area portion of the base 2. The layer 5, for instance, might first be applied to cover the entire area of the base, and after having been applied, an area of the selected size may be cut out from the applied intermediate layer 5 and the polarizing filter 4 may be applied in the cut out portion of the intermediate layer.

The protective layer 3 may then extend over the entire area of the structure, and may thereby guard the polarizing filter 4 as well as the intermediate layer 5 surrounding said filter against the obnoxious influence of the atmosphere.

In the embodiment illustrated in Fig. 3, the base 2 again is covered with a layer 6 which extends over the entire area of said base. Where this base is made of glass or some other shatterable material, the protective element 7 also may be produced of some shatterable substance, as for instance, another similar pane of glass, and owing to the provision of a cementitious layer 6 of non-shatterable material between these two outer elements, the entire structure will be converted into a non-shatterable structure. The intermediate layer 6 which cements the two glass panes together may be of polarizing effect over the entire area, as indicated at 1 in Fig. 1. It may also, however, be made of a non-polarizing transparent material which is rendered suitable for polarizing incoming light over a predetermined area portion only. This conversion of the transparent layer 6 over a predetermined area portion thereof into a polarizing filter may for instance be effected by applying to that portion of the transparent base 2 which is to be made light polarizing a coat 8 having the dichroitic crystalline material embedded therein and then applying to the remaining portion of the base 2 a clear coat 9, both coats 8 and 9 merging together and forming the integral layer 6.

The dispersion of this dichroitic crystalline material in the layers 1, 4 or 8 may be a uniform dispersion or if desired the crystallinic particles adjacent the marginal portions of the layers may be gradually scattered and arranged irregularly oriented as illustrated in Fig. 7 so as to merge the polarizing area 8 gradually along the margins thereof into the non-polarizing surrounding area 9 of the intermediate layer 6.

In the embodiment illustrated in Fig. 4, the base 10 may be formed by a synthetic resinous product of sufficient transparency and distinguished by the fact that it will not produce a double refraction of the light. The polarizing layer preferably is applied to the surface of the base 10 in the form of a layer of micro-crystals or in a form of a suspension in a suitable carrier which will leave the micro-crystals in the form of a thin layer upon the suspension. Where the micro-crystals are directly applied to the base 10, the polarizing layer 11 is produced by heating the base 10 during or after the spreading of the dichroitic crystals upon its surface. It is also feasible to apply a solvent to the surface of the base 10 to dissolve an extremely thin zone on the surface of said base and to embed the crystallinic material within said zone. In case the polarizing material is applied in the form of a suspension, the suspension fluid may at the same time act as a binder for retaining the polarizing material in the form of a foil or layer upon the surface. This layer may be spread again over the entire area of the base or a portion of the same only to produce a structure, for instance, as shown in Figs. 5 or 6, and where desired, the polarizing layer 11 may again be covered by a protective layer 3 or the like.

I claim:

A polarizing structure comprising a base of transparent material, a foil of transparent material applied to one surface of said base and covering the entire area of the same, a portion of said foil located within the outline of the same being adapted to polarize light passing therethrough, the polarizing portion of the foil merging with decreasing polarizing effect into the surrounding non-polarizing area of the foil.

HANS SAUER.

PLAINTIFFS' EXHIBIT No. 7.

L.W.C., Jr. 4-27-36.

Discussed the results of the week-end's tests with P.D.B., L.P. and H.W.C., individually. Generally agreed that bronziness is the next problem to solve.

At 9:00 A.M., hung vinyl 4-23-36 ⑤ and vinyl 4-23-36 ⑥ in 45°C and 70°C vaults respectively to dry out the dimethyl phthalate.

Removed the P-1031 and P-1032 .010" sheets from 45°C vault. They have had 96 hours seasoning. Using P-1031 10's, made a 5-ply lamination with film of 4-17-36 as usual except gave 2 min. instead of 1½ min. heat cycle in press to surely stick. OK, but adhesion to ISQ sheet does not seem as good as with soft stock less seasoned. Kept this for headlight heat test. (4-27-36 ①)

Tried some low temperature, low ~~heat~~ pressure laminations of ISQ sheet between .010" plastacele, spraying plastacele with acetone, or acetone + methyl cellosolve, or acetic ether-methanol. Nothing along this line would work, enough spray to give even a fair adhesion being enough to permanently redden the ISQ cutoff.

At 8:00 P.M. examined the two vinyls which have had 6 hours' seasoning at 45°C and 70°C. The former shows no change and seems neither more flabby nor more stiff. The one in the 70°C oven is very flabby. The film has split in places. Cut off O.K.

Daniel H. Benton
April 27, 1936.

(4)

Written & signed 4-27-36 Louis W. Chubb, Jr.

IV.

ADDITIONAL PAPERS DESIGNATED BY APPELLANT.

Mandate.

UNITED STATES COURT OF APPEALS
DISTRICT OF COLUMBIA

No. 8854

POLAROID CORPORATION, a corporation, and ROBERT A. SMITH,
APPELLANTS
v.
JAMES E. MARKHAM, as Alien Property Custodian and
CASPER W. OOMS, Commissioner of Patents, APPELLEES

Appeal from the District Court of the United States
for the District of Columbia

Argued May 17, 1945 Decided September 24, 1945

Before GRONER, C. J., and MILLER and EDGERTON, JJ.

PER CURIAM: This is an appeal from a judgment of the District Court in a suit under R. S. § 4915 to obtain a patent. The claim relates to a polarizing film placed between layers of transparent material. The film merges gradually, with decreasing polarizing effect, into the surrounding material. In December, 1939, a patent on this claim was awarded to Sauer, a German national whose rights are now vested in appellee the Alien Property Custodian. In June, 1940, Smith filed an application on the same claim. In an interference proceeding, priority was awarded to Sauer. Smith and his assignee the Polaroid Corporation, the present appellants, then brought this suit. The District Court, after a hearing, dismissed the complaint.

It is not disputed that appellant Smith was the first to conceive the idea. In order to establish priority of invention Smith produced evidence to show (1) that he had been first to reduce the invention to practice and (2) that Sauer's disclosure was inoperative. This evidence was uncontradicted. The District Court made the following "Findings of Fact"; "9. For the purpose of proving inoperativeness of the Sauer specification . . . the witness Blake was examined by plaintiff . . . 12. Chubb testified that under the direction of Smith, on April 17, 1936 a sheet of polarizing material having a tapering thickness . . . was made by him . . . 13. Additional testimony from the witnesses Chubb, Blake and Smith was obtained . . . on the issue of actual reduction to practice of Smith." The court also made "Conclusions of Law" which included the following: "4. The plaintiff Smith has failed to prove reduction to practice of the invention at issue, prior to his filing date, June 26, 1940. 5. Proofs offered by the plaintiffs herein failed to show inoperativeness of the defendant Sauer's specification as to the subject matter of the count here at issue. 6. Sauer is the first inventor . . ."

Reports of testimony, without more, are not adequate findings of fact. Since operativeness, reduction to practice, and priority of invention are questions of fact, it was error to designate findings on these matters as conclusions of law. This error would be largely formal, and probably would not require a remand, if we could get a clear understanding of the basis of the court's judgment. Cf. *Minnesota Mining & Mfg. Co.* v. *Coe*, 75 U. S. App. D. C. 131, 125 F. 2d 198. But we cannot tell, from the findings and conclusions, whether the court disbelieved the uncontradicted testimony of appellants' witnesses or whether it considered that this testimony though true failed for some reason or reasons of law to establish inoperativeness and reduction to practice. The record of the proceedings in the Patent Office does not help us; no evidence was offered there on the issue of inoperativeness, and on the issue of reduction to practice the appellants presented considerable additional evidence in the District Court. Accordingly we must set aside the judgment and remand the case for a fuller compliance with the requirement of F. R. C. P. Rule 52 (a) that the court "find the facts specially and state separately its conclusions of law thereon . . ." Cf. *United States* v. *Esnault-Pelterie,* 299 U. S. 201; *Interstate Circuit, Inc.* v. *United States,* 304 U. S. 55; *Saginaw Broadcasting Co.* v. *Federal Communications Commission,* 68 App. D. C. 282, 287, 96 F. 2d 554.

Remanded.

Findings of Fact and Conclusions of Law Filed March 18, 1946.

IN THE DISTRICT COURT OF THE UNITED STATES
FOR THE DISTRICT OF COLUMBIA

Civil Action No. 21101.

POLAROID CORPORATION and ROBERT A. SMITH, Plaintiffs,
v.
JAMES E. MARKHAM, as Alien Property Custodian and
CASPAR W. OOMS, as Commissioner of Patents
Defendants.

FINDINGS OF FACT.

1. This is a suit brought under the provisions of Section 4915 R. S. (U. S. C. Title 35, Sec. 63), as amended, to direct the Commissioner of Patents to issue a patent to the plaintiff, Polaroid Corporation.

2. The plaintiff, Polaroid Corporation, is a corporation incorporated in Delaware with an office and place of business in Cambridge, Massachusetts; and the plaintiff, Robert A. Smith, is a citizen of the United States and a resident of Mahwah, New Jersey. The defendant, James E. Markham (substituted by motion for Leo T. Crowley as the Alien Property Custodian), is the Alien Property Custodian of the United States and is here sued as such. The defendant,

Caspar W. Ooms, is the Commissioner of Patents and is here sued as such.

3. On December 30, 1937, Hans Sauer, a resident of Dresden, Germany, duly filed an application for Letters Patent of the United States on a Polarizing Structure, Serial Number 182,497, which application eventuated in Letters Patent No. 2,185,018 issued on December 26, 1939. Said patent contains one claim as follows:

> A polarizing structure comprising a base of transparent material, a foil of transparent material applied to one surface of said base and covering the entire area of the same, a portion of said foil located within the outline of the same being adapted to polarize light passing therethrough, the polarizing portion of the foil merging with decreasing polarizing effect into the surrounding non-polarizing area of the foil.

4. In the Oath and Preliminary Statement forming a part of said application, Serial No. 182,497, the applicant, Sauer, acknowledged a number of applications filed in foreign countries, particularly an application for a Gebrauchsmuster filed in Germany by Sauer's assignee or legal representative, Zeiss Ikon Gesellschaft of Dresden, Germany, on December 31, 1936. The Gebrauchsmuster was registered on March 10, 1938, under No. 1,431,367. The application for this Gebrauchsmuster claimed and disclosed, and it constitutes a constructive reduction to practice of, the invention in the count in issue. A certified copy and translation of the application for the Gebrauchsmuster No. 1,431,367 was filed by Sauer in Interference No. 78,603.

5. By a proper instrument in writing, duly recorded in the United States Patent Office, Hans Sauer assigned his entire right, title and interest in and to said domestic application, Serial Number 182,497, to Zeiss Ikon Gesellschaft, Dresden, Germany. Subsequent to said assignment, Letters Patent No. 2,185,018 of Sauer was duly vested by the

Alien Property Custodian by Vesting Order No. 112 (7 Fed. Reg. 7785, October 1, 1942), in accordance with authority granted him particularly Section 5(b) of the Trading with the Enemy Act (40 Stat. 411, 50 U.S.C. App.), as amended by Title III of the First War Powers Act, 1941 (55 Stat. 839, 50 U.S.C. App. (Supp. 1943)) and Section 2(d) of Executive Order No. 9095 (7 Fed. Reg. 1971), as amended (7 Fed. Reg. 5205), to be held, used, administered, liquidated, sold or otherwise dealt with in the interest of and for the benefit of the United States.

6. On June 28, 1940, the plaintiff Robert A. Smith filed an application for Light Polarizing Material for Use in Glare Elimination, Serial No. 342,467. By proper instrument in writing the plaintiff Smith assigned his entire right, title and interest to his application for patent, Serial No. 342,467, to the plaintiff Polaroid Corporation.

7. Smith's application, Serial Number 342,467, contained as one of its claims, to wit, claim 2, the claim of the Sauer patent and at the time of the filing, plaintiff Smith requested the Patent Office to declare an interference between his application and the Sauer patent No. 2,185,018. An Interference, No. 78,603, was declared by the defendant, Commissioner of Patents, on September 16, 1940, and this interference was terminated on May 20, 1941 by a decision of the Primary Examiner holding that the claim was not patentable to Smith. A rejection of the claim was thereupon entered in the Smith application. On Appeal, the action of the Primary Examiner rejecting the claim was reversed and a new Interference, No. 79,902, was instituted between the same parties on January 21, 1942.

8. Only the party Smith offered testimony and was represented at final hearing in said Interference No. 79,902 but both parties filed briefs. On April 13, 1943, the Board of Interference Examiners of the Patent Office awarded priority of invention of the subject matter in issue to Hans Sauer, the senior party (Pls. Ex. 5) and on April 29, 1943,

the party Smith filed a petition for reconsideration of the decision rendered by the Board of Interference Examiners. On May 13, 1943, the Board of Interference Examiners adhered to their decision of April 13, 1943, awarding priority of invention to Sauer (Pls. Ex. 6).

9. No appeal to the United States Court of Customs and Patent Appeals from said decisions of the Board of Interference Examiners is pending or has been decided.

10. By stipulation of counsel the records in Interference 78,603 and 79,902 were admitted in evidence and, in addition, the plaintiffs called the witnesses Lewis W. Chubb, Jr., Robert P. Blake, and Robert A. Smith, all of whom have testified in Interference No. 79,902 in the Patent Office. The only exhibits not before the Patent Office are page 67 of the witness Chubb's notebook (Plfs. Ex. 7), two vectograph prints (Plfs. Exs. 8 and 9), glasses for viewing the prints (Plfs. Ex. 11) and a glass plate on which a test was performed by plaintiffs' witness, Blake (Plfs. Ex. 10).

11. The plaintiff, Robert A. Smith on April 13, 1936 conceived the invention set forth in the count in interference and made sketches and drawings (in evidence as Exhibits 9 and 10 in Interference No. 79,902, part of Plaintiffs' Exhibit No. 4 in the case at bar) which were explained to Lewis W. Chubb, Jr.

12. Additional testimony from Lewis W. Chubb, Jr., and Robert A. Smith was obtained with a view to supplementing testimony given by them in Interference No. 79,902 on the issue of actual reduction to practice of Smith. The witness Robert P. Blake testified on the issue of the operativeness of Sauer's disclosure supplementing his testimony offered before the Patent Office in Interference No. 79,902.

13. Plaintiffs have sought to prove prior reduction to practice by the making on and between April 17, 1936 and December 30, 1937, of polarizing films of tapering thicknesses, which films were laminated between transparent plastic sheets into five-ply laminations. Chubb first made such

a film of tapering thickness by extrusion on April 17, 1936, and he formed several five-ply laminations on April 27, 1936, from the polarizing film of tapering thickness made by him on April 17, 1936. Each of these laminations comprised a transparent base and a transparent foil, said foil including within its borders a sheet of the polarized film of tapering thickness. These laminations and others like them were made by Chubb from April 1936 to approximately the end of 1937. Neither the soft adhesive layers which encased the polarizing film nor the outer layers of the five-ply laminations affected the polarizing properties of the polarizing film.

14. These five-ply laminations were to be used in 1936 and 1937 exclusively in headlight glare eliminating systems.

15. The five-ply laminations made on April 27, 1936, testified to by Lewis W. Chubb, Jr., and Robert A. Smith, are not a sufficient embodiment of the invention as defined in the count in issue, since these laminations used the polarizing film made by Lewis W. Chubb, Jr., on April 17, 1936, and this film was admitted by Chubb to be far from perfect.

16. Plaintiffs have not established that the defects in the five-ply laminations of April 27, 1936, were overcome in the other laminations made by them in 1936.

17. The mere making of the five-ply laminations relied upon by the plaintiffs does not constitute a reduction to practice, since, even if the laminations were perfect and embodied all the features of the invention in issue, the laminations must be proved to have been adequately tested in their intended application of eliminating headlight glare and to have had practical utility in eliminating headlight glare.

18. Plaintiffs rely for their claim of reduction to practice upon two types of testing in 1936 and 1937 of the five-ply laminations made by them during those years. The first is road tests, and the second is laboratory tests of the

light polarized by the laminations with other polarizing screens.

19. The testimony of Robert A. Smith that the five-ply laminations were subjected to road tests in 1936 and 1937 is insufficient to establish that the laminations were adequately and successfully tested in their intended use in eliminating headlight glare, since his testimony shows that the laminations were used in a two-fold fashion, viz., as a film over the headlights of the approaching car and as a visor or part of the windshield of the viewer, and that the laminations were used in conjunction with one another in this fashion and not separately. Used in this two-fold fashion, the laminations were of no use in the elimination of headlight glare, since the heat of the headlights would in a short time injure the polarizer in the laminations placed over the headlights.

20. The testimony of Lewis W. Chubb, Jr., Fred Pine and Louis Paggi as to road tests, which is all the remaining evidence adduced by the plaintiffs as to road tests, is insufficient to establish adequate and successful testing in 1936 or 1937 of the five-ply laminations in eliminating headlight glare, since such testimony fails to show the nature of the road tests or the conditions under which they were carried out. Nor does such testimony show the results achieved by the road tests except that Chubb's testimony corroborates the testimony of Smith that the heat of the headlights would in a short time injure the polarizer in the laminations placed over the headlights.

21. Plaintiffs have therefore failed to prove reduction to practice in 1936 or 1937, or at any time prior to the filing of Smith's application on June 26, 1940, of the invention in the count in issue by their proofs as to road tests carried on during these years.

22. The testimony of Lewis W. Chubb, Jr., Robert S. Smith and Robert P. Blake that the five-ply laminations were tested in 1936 and 1937 by analyzing the light polar-

ized by them with other screens, which is all the evidence adduced by the plaintiffs on this point, does not prove adequate and successful testing in these years of the laminations in their intended use of eliminating headlight glare. This type of laboratory testing and the testimony of Lewis W. Chubb, Jr., Robert A. Smith and Robert P. Blake as to the results of the testing do not establish the practical utility in eliminating headlight glare of a "polarizing portion of the foil merging with decreasing polarizing effect into the surrounding non-polarizing area of the foil", as required by the invention in the count in issue.

23. Plaintiffs have therefore failed to prove reduction to practice in 1936 or 1937, or at any time prior to Smith's filing date on June 26, 1940, of the invention in the count in issue by their proofs as to tests during these years of the five-ply laminations with other polarizing screens.

24. Plaintiffs have not satisfactorily explained why if they had successfully reduced the invention in issue to practice as early as April 27, 1936, and many times thereafter in 1936 and 1937, as claimed by them, they failed to file an application for patent for the invention until June 26, 1940, three or four years after the alleged reductions to practice and only after the grant of a patent to Sauer. This long and unexplained delay in plaintiffs' filing an application for patent is a circumstance indicating that there was no reduction to practice in 1936 and 1937.

25. Plaintiffs have not urged that they were diligent and the evidence does not disclose that they were diligent in reducing the invention in issue to practice from a time just prior to December 30, 1937, Sauer's domestic filing date, to June 26, 1940, the date of plaintiffs' application for patent.

26. Plaintiffs have failed to prove that they reduced to practice the invention in issue prior to December 30, 1937, Sauer's domestic filing date.

27. Plaintiffs have failed to prove that they reduced to

practice the invention in issue prior to June 26, 1940 when their application for patent was filed.

28. Plaintiffs did not move in the Patent Office to dissolve Interference No. 78,603 or 79,902, pursuant to Rules 130 and 122 of the Rules of Practice in the Patent Office, on the ground that the disclosure in Sauer's application of December 30, 1937, was inoperative, and the Patent Office, hence, refused in these interferences to consider evidence on the question of the inoperativeness of Sauer's disclosure.

29. The plaintiffs rely chiefly on the testimony of Robert P. Blake, a long-time employee of the plaintiff, Polaroid Corporation, and research engineer engaged in work with polarizers to establish that Sauer's disclosure is inoperative. Testimony of Robert A. Smith and Lewis W. Chubb, Jr., were also offered by plaintiffs in the Patent Office in Interference No. 79,902, to show that Sauer's disclosure was inoperative.

30. The novel feature embodied in the structure of the claim here in issue resides in the provision of a gradual merger between the polarizing and non-polarizing areas of the foil. Sauer achieved this area of gradual merger by the gradual scatter and disorientation of the crystals adjacent to the marginal portions of the foil so as to merge the polarizing area gradually into the non-polarizing area.

31. Blake's testimony and the testimony of Chubb and Smith fail to prove that Sauer's disclosure is inoperative because such testimony does not prove that a gradual scatter and disorientation of the polarizing crystals disclosed by Sauer could not be achieved by one skilled in the art, or that such a scatter and disorientation would not produce a gradually decreasing polarizing effect as claimed in the invention in the count in issue.

32. The evidence adduced by the plaintiffs does not establish their claim that an opaque rather than a gradually decreasing polarizing effect is a necessary result of the grad-

ual scatter and disorientation of polarizing crystals disclosed by Sauer, since Blake's testimony shows merely that disorientation will allow less transmission of light than orientation and that the amount of light transmitted will depend on the degree of disorientation and density of the crystals. There is nothing in Sauer's disclosure that requires the crystals to be disoriented in such a degree and to overlie one another in sufficient density to create opacity.

33. Plaintiffs' proofs do not establish their claim that the application of heat to all types of crystals and carriers known in the art on December 30, 1937, the date of Sauer's domestic application, would render the crystals non-polarizing since plaintiffs' witness, Robert P. Blake, admitted that there were special crystalline types of polarizers known in the art on December 30, 1937, but no proofs were offered that the application of heat to these special types would render the crystals non-polarizing.

34. The plaintiffs have failed to prove that the disclosure in Sauer's domestic application of December 30, 1937 is inoperative.

35. The disclosure in Sauer's domestic application of December 30, 1937 is operative and is sufficient as evidence of conception and a constructive reduction to practice of the invention in the count in issue.

36. Hans Sauer is the true, original and first inventor of the invention forming the subject matter of the claim of United States Letters Patent No. 2,185,018, issued December 26, 1939, and the plaintiff Robert A. Smith is not the true, original and first inventor of the invention forming the subject matter of said claim.

Conclusions of Law.

1. The Court has jurisdiction of the parties and of the subject matter herein.

2. Since the plaintiff Smith filed his application for a patent for the invention in the count in issue after the is-

suance of a patent to Sauer and the Patent Office has awarded priority of invention to Sauer, the plaintiffs have the burden of proving by evidence which is clear and convincing and which carries thorough conviction that the plaintiff is the prior inventor.

3. The plaintiffs have failed to sustain their burden or proving that the plaintiff Smith is the prior inventor since they have failed to prove (a) that Smith reduced to practice the invention in issue prior to December 30, 1937, Sauer's domestic filing date, or (b) that Sauer's disclosure is inoperative, or (c) that Smith was diligent in reducing to practice from a time just prior to December 30, 1937 to June 26, 1940, the date of Smith's application.

4. The tribunals of the Patent Office were not in error in awarding priority of invention to Hans Sauer.

5. United States Letters Patent No. 2,185,018 was properly granted to Hans Sauer on the invention in the count at issue, and title thereto was property vested by the Alien Property Custodian.

6. The complaint should be dismissed, with costs and disbursements to the defendant.

Let judgment be entered accordingly.

Dated March 1st, 1946.

/s/ DANIEL W. O'DONOGHUE, *Justice.*

January 16, 1946

/s/ HARRY LeROY JONES,
/s/ IRVING J. LEVY,
Special Assistants to the Attorney General,
/s/ *By* Samuel Z. Gordon,
Attorney, Department of Justice,
Attorneys for the Defendants,
Markham *as* Alien Property Custodian.

Judgment Filed March 18, 1946.

IN THE DISTRICT COURT OF THE UNITED STATES
FOR THE DISTRICT OF COLUMBIA

Civil Action No. 21101.

POLAROID CORPORATION and ROBERT A. SMITH, Plaintiffs,
v.
JAMES E. MARKHAM, as Alien Property Custodian and
CASPER W. OOMS, as Commissioner of Patents,
Defendants.

JUDGMENT.

This cause having been remanded to this court by mandate of the Court of Appeals of September 24, 1945 for further proceedings in conformity with the opinion of said Court of Appeals, upon consideration thereof at this term and after hearing argument of counsel, it is this 18th day of March, 1946 adjudged as follows:

1. Hans Sauer, whose United States Letters Patent No. 2,185,018 issued on December 26, 1939 was duly vested by the defendant, James E. Markham, as Alien Property Custodian, is the true, original and first inventor of the invention forming the subject matter of the claim of said Patent No. 2,185,018, and the plaintiff, Robert A. Smith, is not the true, original and first inventor of the invention forming the subject matter of said claim.
2. The complaint is hereby dismissed with costs against the plaintiffs.

DANIEL W. O'DONOGHUE, *Justice.*

Approved as to form.

CECIL A. BEASLEY, JR.,
Counsel for Plaintiffs.

Plaintiffs' Notice of Second Appeal.

IN THE DISTRICT COURT OF THE UNITED STATES
FOR THE DISTRICT OF COLUMBIA.

Civil Action No. 21101.

POLAROID CORPORATION and ROBERT A. SMITH, Plaintiffs,
v.
JAMES E. MARKHAM as Alien Property Custodian and
CASPAR W. OOMS, as Commissioner of Patents,
Defendants.

PLAINTIFFS' NOTICE OF SECOND APPEAL TO THE UNITED STATES COURT OF APPEALS FOR THE DISTRICT OF COLUMBIA.

Notice is hereby given that the Polaroid Corporation, a corporation, and Robert A. Smith, an individual, plaintiffs in the above-entitled cause, hereby appeal to the United States Court of Appeals for the District of Columbia from the order entered in this action on March 18, 1946, which, among other things, dismisses the Complaint herein.

Dated: June 17th, 1946.

/s/ CECIL A. BEASLEY, JR.
912 American Security Bldg., Washington 5, D. C.

I acknowledge to have received the notice of which the within is a duplicate, and do accept service thereof this seventeenth day of June, 1946.

/s/ DONALD C. COOK,
Ex. Asst. to the Atty. Gen.

/s/ W. W. COCHRAN,
Solicitor, U. S. Patent Office
Atty. for Appellee, OOMS.

Plaintiffs' Statement of Points on Second Appeal.

IN THE DISTRICT COURT OF THE UNITED STATES
FOR THE DISTRICT OF COLUMBIA.

Civil Action No. 21101.

POLAROID CORPORATION and ROBERT A. SMITH, Plaintiffs,
v.
JAMES E. MARKHAM, as Alien Property Custodian and
CASPAR W. OOMS, as Commissioner of Patents,
Defendants.

PLAINTIFFS' STATEMENT OF POINTS ON SECOND APPEAL.

The plaintiffs state that the points upon which they intend to rely in the appeal in this action are as follows:

1. The Court erred in dismissing plaintiffs' Complaint.
2. The Court erred in holding that Hans Sauer, whose United States Letters Patent No. 2,185,018 issued on December 26, 1939, is the true, original and first inventor of the invention forming the subject matter of the claim of said Patent No. 2,185,018.
3. The Court erred in failing to hold that the plaintiff, Robert A. Smith, is the true, original and first inventor of the invention forming the subject matter of the claim of said Sauer Patent No. 2,185,018.
4. The Court erred in holding that the Gebrauchsmuster, registered on March 10, 1938, under No. 1,431,367, by Zeiss Ikon Gesellschaft of Dresden, Germany, in Germany, constitutes a reduction to practice by Sauer of the invention of the count in issue.
5. The Court erred in giving weight to the perfection of the lamination or any part thereof in holding that "the five-ply laminations made on April 27, 1936 *** are not a sufficient embodiment of the invention as defined in the count in issue, since these laminations used the polarizing film

made by Lewis W. Chubb, Jr., on April 17, 1936, and this film was admitted by Chubb to be far from perfect''.

6. The Court erred in holding that the ''mere making of the five-ply laminations relied upon by the plaintiffs does not constitute a reduction to practice'' and in predicating such holding on the reason that ''the laminations must be proved to have been adequately tested in their intended application of eliminating headlight glare and to have had practical utility in eliminating headlight glare''.

7. The Court erred in holding that the aforesaid five-ply laminations and the other five-ply laminations made by Chubb on and between April 27, 1936 and December 30, 1937 ''were of no use in the elimination of headlight glare, since the heat of the headlights would in a short time injure the polarizer in the laminations placed over the headlights''.

8. The Court erred in holding that the testimony of Lewis W. Chubb, Jr., Fred Pine, and Louis Paggi as to road tests ''is insufficient to establish adequate and successful testing in 1936 or 1937 of the five-ply laminations in eliminating headlight glare'' and in holding that the alleged insufficiency of the testimony is due to a failure to ''show the nature of the road tests or the conditions under which they were carried out''.

9. The Court erred in holding that the plaintiffs ''failed to prove reduction to practice in 1936 or 1937, or at any time prior to the filing of Smith's application on June 26, 1940, of the invention in the count in issue by their proofs as to road tests carried on during these years''.

10. The Court erred in holding that the laboratory testing of Lewis W. Chubb, Jr., Robert A. Smith, and Robert P. Blake was inadequate to reduce the invention to practice and in giving as the reason for this holding that such testing does not ''establish the practical utility in eliminating headlight glare of a 'polarizing portion of the foil merging with decreasing polarizing effect into the sur-

rounding non-polarizing area of the foil', as required by the invention in the count in issue''.

11. The Court erred in holding that for a reduction to practice of the invention in issue it was necessary to have the aforesaid five-ply laminations function successfully not only as visors but also as headlight screens.

12. The Court erred in failing to hold that the invention in issue was reduced to practice by the mere making of the aforesaid five-ply laminations and the testing of the polarizing properties there of in the laboratory.

13. The Court erred in holding that there was any burden upon plaintiffs to satisfactorily explain ''why if they had successfully reduced the invention in issue to practice as early as April 27, 1936, and many times thereafter in 1936 and 1937, as claimed by them, they failed to file an application for patent for the invention until June 26, 1940, three or four years after the alleged reductions to practice and only after the grant of a patent to Sauer'' and in holding that this ''long and unexplained delay in plaintiffs' filing an application for patent is a circumstance indicating that there was no reduction to practice in 1936 or 1937.''

14. The Court erred in holding that ''the disclosure in Sauer's domestic application of December 30, 1937 is operative'' and in holding that said disclosure ''is sufficient as evidence of conception and a constructive reduction to practice of the invention in the count in issue''.

15. The Court, while properly finding that ''the novel feature embodied in the structure of the claim here in issue resides in the provision of a gradual merger between the polarizing and non-polarizing areas of the foil'', erroneously held that ''Sauer achieved this area of gradual merger by the gradual scatter and disorientation of the crystals adjacent to the marginal portions of the foil so as to merge the polarizing area gradually into the non-polarizing area''.

16. The Court erred in holding that Blake's testimony and the testimony of Chubb and Smith failed to "prove that Sauer's disclosure is inoperative" and in finding that "such testimony does not prove that a gradual scatter and disorientation of the polarizing crystals disclosed by Sauer could not be achieved by one skilled in the art".

17. The Court erred in holding that the evidence adduced by the plaintiffs does not establish that opacity "is a necessary result of the gradual scatter and disorientation of polarizing crystals disclosed by Sauer".

18. The Court erred in failing to hold Sauer's specification inoperative in view of its finding that Blake's testimony shows "that disorientation will allow less transmission of light than orientation and that the amount of light transmitted will depend on the degree of disorientation and density of the crystals" and such further finding as "There is nothing in Sauer's disclosure that requires the crystals to be disoriented in such a degree and to overlie one another in sufficient density to create opacity."

19. The Court erred in failing to hold that the Sauer specification was insufficient both as evidence of conception and as a reduction to practice of the invention in issue and that said specifications under no circumstances entitled Sauer to an award of priority.

Dated: June 17th, 1946.

/s/ CECIL A. BEASLEY, Jr.
912 American Security Bldg., Washington 5, D. C.

I acknowledge to have received the statement of which the within is a duplicate, and do accept service thereof this seventeenth day of June, 1946,:

/s/ Donald C. Cook,
Ex. Asst. to the Atty. Gen.

/s/ W. W. Cochran,
Solicitor, U. S. Patent Office
Atty. for Appellee, Ooms.

Plaintiffs' Designation of Record for Appeal on Second Appeal.

IN THE DISTRICT COURT OF THE UNITED STATES
FOR THE DISTRICT OF COLUMBIA.

Civil Action No. 21101.

POLAROID CORPORATION and ROBERT A. SMITH, Plaintiffs,
v.
JAMES E. MARKHAM, as Alien Property Custodian and
CASPAR W. OOMS, as Commissioner of Patents,
Defendants.

PLAINTIFFS' DESIGNATION OF THE RECORD FOR APPEAL ON SECOND APPEAL.

1. All papers and exhibits specified in "Plaintiffs' Designation of the Record for Appeal" filed herein on July 18, 1944, which are as follows:

"1. Complaint

2. Answer of Defendant Conway P. Coe as Commissioner of Patents.

3. Answer of Defendant Leo T. Crowley as Alien Property Custodian.

4. Stenographer's transcript of hearing held on March 13, 1944, before Justice Daniel W. O'Donoghue in the District Court of the United States for the District of Columbia, in the cause herein.

5. Plaintiffs' Exhibits 1, 2, 3, 5, 6, 7 and 10.

6. The following portions of Plaintiffs' Exhibit 4 which is comprised of exhibits offered in evidence in Interference No. 79,902 in the United States Patent Office:

A. Smith's Exhibits 1, 9, 10, 11, 12, 14 and 24, which are documentary exhibits; and

B. Smith's Exhibits 6, 7, 8, 13, 21, 22 and 23, which are physical exhibits.

7. Order substituting James E. Markham for the

Defendant Leo T. Crowley as Alien Property Custodian.

8. Findings of Fact and Conclusions of Law.

9. Judgment.

10. Plaintiffs' notice of appeal to the United States Court of Appeals for the District of Columbia.

11. Statement of Points.

12. This Designation of Record.

13. Order permitting use of original exhibits in lieu of copies."

(Note to Clerk: All papers and exhibits referred to in Item 1 above were certified and filed in the United States Court of Appeals for the District of Columbia on August 28, 1944, and docketed in said Court of Appeals as case No. 8854. A motion to have the transcript of record in that case used in connection with this second appeal herein will be filed in the Court of Appeals, and the Clerk therefore need not include same in the transcript of record to be certified to the Court of Appeals pursuant to this designation of record.)

2. Mandate of United States Court of Appeals that the Judgment of this Court dated April 24, 1944 Is Hereby Set Aside, and that this Cause Be, and It Is Hereby, Remanded to This Court for Further Proceedings — filed October 10, 1945.

3. Findings of Fact and Conclusions of Law filed March 1, 1946.

4. Judgment filed March 18, 1946.

5. Plaintiffs' Notice of Second Appeal to the United States Court of Appeals for the District of Columbia.

6. Plaintiffs' Statement of Points on Second Appeal.

7. Plaintiffs' Designation of the Record for Appeal on Second Appeal.

Dated: June 18, 1946.

/s/ CECIL A. BEASLEY, Jr.,
912 American Security Bldg., Washington 5, D. C.

I acknowledge to have received the designation of which the within is a duplicate, and do accept service thereof this seventeenth day of June, 1946.

/s/ DONALD C. COOK,
Ex. Asst. to the Atty. Gen.

/s/ W. W. COCHRAN,
Solicitor, U. S. Patent Office
Atty. for Appellee, OOMS.

V.

EXCERPTS FROM THE TESTIMONY AND PROCEEDINGS BEFORE THE PATENT OFFICE IN INTERFERENCE NO. 79,902 DESIGNATED BY APPELLEES.

Patent Office Decisions.

DECISION OF THE BOARD OF EXAMINERS.

Paper No. 38. PIH:Mag:D.
Final Hearing August 13, 1942.

IN THE UNITED STATES PATENT OFFICE
BEFORE THE BOARD OF INTERFERENCE EXAMINERS

Patent Interference No. 79,902
Smith v. *Sauer*

POLARIZING STRUCTURES

Application of Robert A. Smith filed June 26, 1940, No. 342,467.

Patent granted Hans Sauer December 26, 1939, No. 2,185,018, on application filed December 30, 1937, No. 182,497.

Mr. Donald L. Brown for Smith.

Mr. A. M. Holcombe and Mr. Bernard Wohlfert for Sauer.

The invention here involved pertains to a polarizing structure which is particularly useful in automobile windshields. A transparent foil is applied to one entire surface of a transparent base such as glass, a part of said foil which is located within the outline of the base being adapted to polarize light. The polarizing portion merges with decreasing polarizing effect into the surrounding non-polarizing portion so that an abrupt change in optical properties is avoided and a variable polarization effect is provided. The single count in issue reads as follows:

> A polarizing structure comprising a base of transparent material, a foil of transparent material applied to one surface of said base and covering the entire area of the same, a portion of said foil located within the outline of the same being adapted to polarize light passing therethrough, the polarizing portion of the foil merging with decreasing polarizing effect into the surrounding non-polarizing area of the foil.

Sauer, the senior party, filed his application in this country December 30, 1937, and was granted a patent thereon December 26, 1939. Smith filed his application June 26, 1940, and therefore has the burden of establishing priority of invention beyond a reasonable doubt. *Walker* v. *Altorfer,* 27 C. C. P. A. 1130, 1940 C. D. 468, 519 O. G. 1043, 111 F. (2d) 164, 45 U. S. P. Q. 317; *Hollister and Wortman* v. *Maynard,* 29 C. C. P. A. 1249, 1942, C. D. —, 545 O. G. 3, 129 F. (2d) 877, 54 U. S. P. Q. 377.

Only the party Smith took testimony and was represented at final hearing, but both parties filed briefs.

Six witnesses testified on behalf of the junior party. Smith is normally occupied as owner of the firm of Smith and Serrell and was formerly president of Polarized Lights, Inc. Chubb, Jr., who will be referred to hereinafter merely as "Chubb," is Smith's son-in-law and is employed as a research physicist by Polaroid Corporation; he was formerly employed by Polarized Lights, Inc. Paggi works in the research laboratory of E. I. du Pont de Nemours and Company. Blake is a research engineer associated with Polaroid Corporation. Pine is office manager of Smith and Serrell and was formerly secretary and treasurer of Polarized Lights, Inc. Brown is attorney for the party Smith and is patent counsel for Polaroid Corporation, assignee of the Smith application.

In his preliminary statement the party Smith alleged first written description and first explanation of the invention to others in March, 1932. A document introduced in evidence as Smith Exhibit 18 bears the notation "This memo written 3/15/32." At the lower part of this document appear the name of Smith over a date of "3/15/32," the name of "John J. Serrell" preceding a date of "3/15/32" and under a notation, "Explained and witnessed," and the name of Pine preceding a date of "3/25/32" and under a notation, "Explained and witnessed." Smith Exhibit 18 was identified by Smith and Pine and the signature of Serrell, now deceased, was identified by the same witnesses. Chubb also identified Smith Exhibit 18, but could not positively state that he saw it at "any date prior to some time in February, 1938" (Smith record, p. 30, Q. 229). The disclosure on the memo of 3/15/32 is of "a headlight—mostly with polarizing screen—but with an unpolarized aperture or patch, or partially unpolarized aperture or patch." This description does not establish conception of the invention of the interference count, which requires the presence of both a base and a foil, the foil covering the entire area of the base, the polarizing portion of the foil being located within the outline of the base, and the polarizing portion "merging with decreasing polarizing effect into the surrounding non-polarizing area." These details are not disclosed in Smith Exhibit 18, nor is there any evidence that they were included in the explanation which Smith made to the attesting witnesses at the time they affixed their signatures to the document.

Chubb is the principal corroborator of Smith and according to him at least as early as the first part of 1933 Smith disclosed headlights for automobiles in which only part of the area was polarizing and the remainder was non-polarizing or only partially polarizing. The polarizing material was to be laminated between supporting elements (Smith record pp. 10-11, Qs. 53-59). Chubb's testimony does not serve to prove conception of the invention in issue, for Chubb did not state that the disclosure by Smith included the details of the polarizing portion of the foil being located within the outline of the base and ''merging with decreasing polarizing effect into the surrounding non-polarizing area of the foil.''

Smith Exhibit 19 is a memorandum bearing the date of ''3/12/36'' at the top and signatures of Smith and Pine under dates of ''3/17/36'' at the bottom. In so far as proof of conception of the intervention in issue is concerned, this document is of the same order as and of no greater value than Smith Exhibit 18. The observations made above with respect to Smith Exhibit 18 are equally applicable to Smith Exhibit 19.

Smith Exhibits 1 through 5, 12, 24, and 25, bearing dates from March 12, 1936 through April 10, 1936, and the testimony relating thereto may all be considered together. It is apparently this portion of the junior party's record which furnished the basis for Smith's allegation in his preliminary statement that he first made drawings and reduced the invention to practice in March, 1936. The evidence of activity during the period from March 12, 1936 through April 10, 1936 relates to the problem of encasing or laminating polarizing film with plastic materials. One of the solutions which was proposed and tested was use of a plastic material larger in area than the polarizing film so that the edges of the finished article would be sealed. However, there is no evidence that there was any proposal or any attempt at that time to produce a structure wherein the polarizing portion of the foil merged ''with decreasing polarizing effect into the surrounding non-polarizing area of the foil.'' It may be noted at this point that the existence of Smith Exhibits 24 and 25 on the dates given thereon is not corroborated, for only Smith identified these documents.

The party Smith, on page 8 of his brief, applies the terms of interference count to the work which was performed in March of 1936 and gives special consideration to that limitation which requires that the polarizing portion should merge "with decreasing polarizing effect into the surrounding non-polarizing area." Smith points out, "The area of decreasing polarizing effect is nowhere defined in the count. It may be wide, or exceedingly narrow. In the latter case the structures already described would appear to meet the count." In the first place, an "exceedingly narrow" area of decreasing polarizing effect would not have any utility and therefore would not respond to the ordinary meaning of the terms in the interference count. In the second place, there is no evidence that there was any concept of or attempt to produce a structure having an "exceedingly narrow" area of decreasing polarizing effect in March of 1936, nor is there any proof that such a structure was made at that time.

Smith Exhibit 9 is a document dated "4/13/36" and bears the names of Smith and Chubb over the same date. This exhibit was identified by both Smith and Chubb, who related the incidents leading up to its preparation. The document discloses a visor with a greater degree of polarization at the upper left hand corner than at the lower right hand corner and suggests that this result may be achieved by superimposing sheets of polarizing material or by providing a polarizing sheet of tapered thickness. Smith Exhibit 9 does not disclose any non-polarizing area, but Chubb testified that he and Smith discussed the use of such a variable polarizing structure as a visor and also incorporated in the plastic adhesive layer in a windshield in the manner shown in Smith Exhibit 1 (Smith record, p. 25, Q. 181). This testimony by Chubb corroborates similar testimony by Smith (Smith record, p. 69, Q. 74). The substance of the discussion between Smith and Chubb on April 13, 1936, is substantiated by a memorandum dated "4/29/36," signed and identified by Smith, and witnessed and identified by Pine (Smith Exhibit 20). This evidence is considered to establish conception of the invention in issue on April 13, 1936.

Smith Exhibit 11 was identified by Chubb as a page from his notebook which was written by him on April 13, 1936. This document suggests a method of producing a film of varying polarizing properties, but there is no evidence that this suggestion was actually followed on April 13, 1936.

Chubb identified Smith Exhibit 14, bearing the date of "4-17-36" at the top as a written description of the manufacture of polarizing film of varying thickness. Chubb stated that this document refers to sheeting made by him or under his direction (Smith record, p. 27, Qs. 201-205). This exhibit notes that sheeting which was made varied "in thickness from 0.00175″ to 0.0030″ ±, mostly 0.00225″ ±". The party Smith relies upon this evidence, and also upon other evidence which will be discussed hereinafter, as proof of reduction to practice at least as early as April 1936. However, the picture presented by Smith Exhibit 14 is not one of a successful production of a polarizing film of tapered thickness. The incomplete sentence at the top of Smith Exhibit 14 ends, "altho still far from perfect." The entry then continues, "Altho the nickel jaws were previously stoned smooth, jaw marks still are apparent in the thin sheets. Also the 'dimpled' surface is still evident. It was decided that the air blast arrangement was partly responsible for the latter and to make further changes in it * * *. Bronziness evident; about as bad as 3-31-36." There was no attempt to explain these critical statements, which would indicate that the attempt to produce tapered polarizing film was unsuccessful. Moreover, Smith Exhibit 14 does not in itself indicate that tapered polarizing film was "applied to one surface" of "a base of transparent material," as required by the interference count, or that a finished structure of the type specified in the count was successfully subjected to a test.

Chubb did not testify that tapered polarizing film, specifically, was applied to one surface of a base of transparent material, and his answer that there were "many cases of the use of glass" was in answer to a question concerning polarizing film generally (Smith record, p. 28, Q. 212). Paggi replied affirmatively when asked whether he recalled having seen sheets made by Chubb at the du Pont plant having the feature of varying thickness and/or varying polarizing properties (Smith record, p. 46, Q. 37) and he also replied in the affirmative when asked whether he helped Chubb in his testing of the finished sheet (Smith record, p. 47, Q. 38), but he did not give the date or result of such testing. In response to a question whether he was "ever present at any road tests of any of the polarizing material made by Mr. Chubb, and used in connection with automobile headlighting," Paggi answered that he "was present at one which was run with Westinghouse in Bloomfield" (Smith record, p. 47, Q. 39), but he did not give the date of this test, the particular material which was tested, or the result of the test.

Smith's testimony that polarizing film was laminated between glass (Smith record, p. 70, Qs. 82-86) is not clear as to whether the polarizing film was of varying polarizing properties, and the date of production of such a structure is not given. Even if Smith's testimony were considered to refer to a structure as required by the interference count, it is uncorroborated.

Chubb testified that on April 13, 1936 he was called by Smith on the telephone and told that Smith had made a polarizing sheet of varying thickness by scraping down one edge of a regular sheet. This testimony is hearsay in so far as it relates to proof of reduction to practice and there is no evidence that the structure which Smith is alleged to have produced was ever applied to a base and the whole successfully tested.

Chubb identified Smith Exhibit 13 as a sample of polarizing material which tapers in thickness across its width and stated that it was made on June 1, 1937 (Smith record, p. 26, Qs. 195, 196) and Smith testified that this sheet is typical of those made prior to April 29, 1936 (Smith record, p. 71, Q. 91). Even assuming that there is satisfactory evidence that Smith Exhibit 13 corresponds in every detail to polarizing sheets made in April, 1936, there is insufficient proof that such sheets were applied to a transparent base as required by the interference count and successfully tested at that time. Smith testified that tests were carried out on all types of products which he identified shortly after such products were prepared (Smith record, p. 76, Qs. 132, 133), but this testimony is not corroborated and, even if corroborated, such a broad statement with no indication of the result of the tests does not constitute a satisfactory substitute for specific testimony as to a specific test of a specific material on a specific date.

On page 12 of his brief the party Smith states that laminations were tested and shown satisfactory and that "these laminations included polarizing foils of varying polarizing properties such as Exhibit 13." As pointed out previously, there is insufficient proof that a tapered polarizing film was applied to a transparent base and successfully subjected to test. It may be noted at this point that the record for the junior party demonstrates extreme care in making and preserving records of ideas and observations, even to the extent of recording telephone conversations (Smith Exhibits 1, 24, 25), yet not a single document has been introduced in evidence which describes the actual application of a polarizing foil of varying polarizing properties to a transparent base, as required by the interference count, nor has there been introduced in evidence any written record of a test of such a structure.

Chubb identified Smith Exhibit 15, bearing a date of "9-12-37" at the bottom, as a record of the laminating of polarizing film and glass, but there is no reference in this exhibit to the "merging" feature specified in the interference count and Chubb did not testify that such feature was present. There is a notation in Smith Exhibit 15 to the effect that small glass discs were received for the making of "partial coverage spectacles" and Chubb identified Smith Exhibits 6, 7, and 8 as lenses made from these discs. Smith Exhibits 6, 7, and 8 are lenses which are partly polarizing and partly non-polarizing. Chubb testified with respect to Exhibits 6 and 7 that the polarizing area merges into the non-polarizing area (Smith record, p. 20, Q. 147) and he also testified with respect to Exhibit 8 that the pinkish strip represents a band of intermediate polarization so that the polarizing portion merges with decreasing polarizing effect into the non-polarizing portion (Smith record, pp. 20-21, Qs. 150, 151). It does not appear that any one of Smith Exhibits 6, 7, or 8 includes a sufficient zone of merger from polarizing to non-polarizing effect to be of any utility in avoiding the undesirable effects of rapidly changing polarizing properties or in providing a zone of varying polarization. Moreover, it may be doubted that the polarizing portion of the foil is "within the outline" of the base or that this portion merges with decreasing polarizing effect into the "surrounding" non-polarizing area, as required by the interference count. There is no evidence that there was any intention of producing a structure meeting the terms of the interference count, and Chubb did not describe the method he used to produce a zone of decreasing polarizing effect. The pinkish strip on Smith Exhibit 8 appears to be merely an undesired imperfection, as evidenced by a spot of similar color wholly within the polarizing portion. Moreover, there is no corroborated evidence that Smith Exhibits 6, 7, or 8 were ever successfully "used as lenses of spectacles for analyzers in vehicle antiglare systems" (Smith record, p. 20, Q. 144) or that they were ever successfully tested in any other manner.

There is also evidence in the Smith record that polarizing structures were produced wherein part of the polarizing film was opaque (Smith record, pp. 31-32, Qs. 238-246; pp. 33-38, Qs. 10-44; p. 40; pp. 74-75, Qs. 117-124; Exhibits 21, 22, 23), but it is considered clear that structures having opaque areas would not meet the terms in the interference count requiring "a foil of transparent material" and that such partially opaque structures would not have any utility within the meaning of the involved patent or application.

The party Smith has established a conception date of April 13, 1936 but has failed to prove reduction to practice of the invention in issue prior to his filing date. In order to prevail, therefore, the junior party must prove that he exercised reasonable diligence beginning at least immediately prior to Sauer's domestic filing date of December 30, 1937, assuming that the senior party is not entitled to any earlier date. There is insufficient evidence of diligence during this entire period, and priority must accordingly be awarded to the senior party. In particular, attention is directed to the fact that disclosures of Smith's activities were turned over to Brown on March 8, 1938, yet the Smith application was not filed until more than two years later.

The party Smith contends in his brief that the Sauer patent is inoperative and certain of the evidence adduced on behalf of the junior party is intended to support this contention. However, the question of inoperativeness of the Sauer patent can not be considered in view of the fact that the party Smith failed to bring a motion to dissolve on this ground under the provisions of Rule 122 and did not show good reason why such a motion was not presented and prosecuted. *Crane and Stout* v. *Carlson,* 29 C. C. P. A. 879, 1942 C. D. 323, 540 O. G. 707, 125 F. (2d) 709, 52 U. S. P. Q. 495, and cases cited therein.

During the motion period in Interference No. 78,603, the predecessor of the presently designated interference, the party Sauer moved to dissolve on the ground that the count in issue was barred to the party Smith by two German Gebrauchsmuster in the name of Sauer's assignee and bearing dates more than two years prior to the party Smith's filing date. The Primary Examiner granted this motion and the interference was dissolved without appeal in accordance with Rule 124. On appeal by the party Smith after an *ex parte* rejection of the claim corresponding to the interference count, which rejection was based on the two German Gebrauchsmuster, the Board of Appeals held that a Gebrauchsmuster is neither a patent nor a printed publication within the meaning of R. S. 4886 and accordingly ruled that the two Gebrauchsmuster previously referred to do not constitute statutory bars against the junior party. In his brief on final hearing the party Sauer again urges that the two Gebrauchsmuster in the name of his assignee constitute statutory bars to the grant of a patent to the party Smith. This is a matter which relates to patentability and may not be raised at final hearing on the question of priority. *Gueniffet, Benoit, and Nicault* v. *Wictorsohn,* 134 O. G. 255, 1908 C. D. 108.

In his brief at final hearing the party Smith states that Sauer is "limited to the filing date of his U. S. application" (Smith brief, p. 2), whereas the party Sauer claims under the International Convention the benefit of the filing date of a Gebrauchsmuster filed in Germany by his assignee on December 31, 1936. The filing of this Gebrauchsmuster was acknowledged in the oath of the Sauer application and was alleged in the Sauer preliminary statement, and a certified copy and translation thereof were filed in the earlier interference, No. 78,603. Whether this Gebrauchsmuster constitutes a constructive reduction to practice, as claimed by the senior party, or whether it is not a constructive reduction to practice because inoperative, as claimed by the junior party, need not be decided, for Sauer's U. S. filing date is sufficient to give him the award of priority. However, it may be noted that in a memorandum filed in Interference No. 78,603 at the hearing on motions the party

Smith conceded "that the International Convention as written gives priority rights based upon Gebrauchsmuster" (p. 1). As for the disclosure in the Gebrauchsmuster, it may be noted that it is in essence the same as the disclosure in the domestic Sauer patent and any doubt as to the support for the count in issue in the Gebrauchsmuster should be resolved against the party Smith because the junior party did not move to dissolve the interference on the ground that the domestic Sauer patent did not support the count. *Dreyfus* v. *Lilienfeld,* 18 C. C. P. A. 1539, 1931 C. D. 681, 413 O. G. 862, 49 F. (2d) 1062, 9 U. S. P. Q. 522. It should also be noted that only the Gebrauchsmuster application filed on December 31, 1936 under the number Z 7 482 Gm. 4b and registered on March 10, 1938 under No. 1 431 367 may be considered in determining Sauer's priority, since this is the only Gebrauchsmuster acknowledged in Sauer's preliminary statement (Rule 110).

During the motion period in Interference No. 78,603 the party Sauer moved to dissolve on the ground that the party Smith cannot make the count, but the motion to dissolve on this ground was denied by the primary examiner and the party Sauer did not reassert his motion on final hearing.

The party Smith has failed to overcome the domestic filing date of the party Sauer, and the senior party is accordingly entitled to the ward of priority.

Priority of invention of the subject matter in issue is hereby awarded to Hans Sauer, the senior party.

W. E. WAITE,
Examiner of Interferences.
P. I. HEYMAN,
Examiner of Interferences.
LOUIS F. KREEK,
Examiner of Interferences.
Board of Interference Examiners.

APRIL 13, 1943.

DECISION OF THE BOARD OF INTERFERENCE EXAMINERS ON THE PETITION FOR RECONSIDERATION.

PIH/Mag/D. Paper No. 41.

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
Richmond, Virginia

Please find below a communication from the Examiner of Interference in this case.

CONWAY P. COE,
Commissioner of Patents.

BERNARD WOHLFERT,
c/o Alien Property Custodian,
National Press Bldg., Washington, D. C.

Interference No. 79,902
Smith v. *Sauer*

On April 29, 1943, the party Smith filed a petition for reconsideration of the decision rendered in the above entitled interference on April 13, 1943. A memorandum in opposition to the party Smith's petition was filed by the party Sauer on May 5, 1943.

A large part of the party Smith's petition for reconsideration is merely an expression of a difference of opinion with the conclusion reached by the Board of Interference Examiners. Clearly, such difference of opinion does not constitute ground for reconsideration. The petition is made up of six principal sections and will be considered in the same order.

The party Smith contends that an unreasonably narrow construction has been placed on the limitation in the count, "the polarizing portion of the foil merging with decreasing polarizing effect into the surrounding non-polarizing area of the foil." It is apparently Smith's view that in construing the count the phrase "with decreasing polarizing effect" should be disregarded. We cannot subscribe to this view, for the count clearly specifies that the merger of the polarizing portion and the non-polarizing area should be accompanied by a "decreasing polarizing effect." Smith's interpretation would render the three quoted words superfluous and meaningless. Smith's contention that the word "gradual" should appear in the count before the interpretation of the Board of Interference Examiners can be supported has been considered, but no necessity is seen for insistence upon a particular word when a phrase of similar import is used. Assuming, *arguendo,* that the phrase "with decreasing polarizing effect" is ambiguous, the prior art of record in the Sauer patent file must be referred to for the purpose of construing the issue (Rule 130). It is clearly brought out in the remarks accompanying the amendment filed May 26, 1939, in the Sauer patent file that the count in issue distinguishes over the prior art because it is restricted to a "polarizing foil or screen whose polarizing effect decreases gradually at the margin where the latter merges into a clear non-polarizing portion of the foil." The party Smith also calls attention to the action of the primary examiner in suspending action on an application of Land, Serial No. 209,060. The proceedings in the prosecution of that case are not of record in this interference and, moreover, are apparently irrelevant. The party Smith's view cannot be accepted that a sharp merger between a uniform polarizing area and a surrounding non-polarizing area is a merger "which is accomplished 'with decreasing polarizing effect' " (Smith's petition for reconsideration, p. 8).

The party Smith also takes exception with statements in the decision of April 13, 1943, to the effect that the zone of "decreasing polarizing effect" must be of sufficient width to be useful. It is recognized that the interference count does not specify any particular application of the polarizing structure, but the original decision is not based on any requirement of a particular utility. There is presumed to be some utility in the zone of "decreasing polarizing effect," and until such utility has been demonstrated in a complete reduction to practice the proofs of reduction to practice must fail. The party Smith has not been restricted to a windshield, drop-flap, or eyeglass lens, but, whatever the nature of the device, the merger zone must be wide enough to be of utility in the intended use of the device. The party Smith contends "that the area of gradual merger in Exhibits 6, 7, and 8 is useful if that area possesses any utility under any circumstances whatever," (Smith petition for reconsideration, pp. 13-14). Assuming that the merger in these exhibits is gradual and not merely an undesired imperfection, there is no showing in the Smith record that the zone of merger was of any utility whatsoever. The party Smith requests that a zone of merger possessing utility be specifically defined, as in inches, but we do not feel it necessary to go any further than pass upon the evidence actually in the record.

The party Smith requests that the original decision be clarified by defining the tests which should be carried out to establish a reduction to practice. The party Smith points out that the only test called for by the count is to look through the device against a known polarizer and that all of Smith's exhibits today meet that test. Some utility must be presumed for the structure defined in the interference count; the exact utility is not specified in the count, but a reduction to practice requires that the finished structure be successfully tested in its intended application. Thus, a headlight system must be tested as a headlight, an eyeglass lens as an eyeglass. We need only pass upon the evidence actually submitted at this time and do not feel it necessary to prescribe specific tests, the nature of which may vary from case to case.

The party Smith requests amplification of the statement on page 11 of the decision rendered April 13, 1943, "Moreover, it may be doubted that the polarizing portion of the foil is 'within the outline' of the base or that this portion merges with decreasing polarizing effect into the 'surrounding' non-polarizing area, as required by the interference count.'' On review, this observation appears to be correct and, since the remaining holdings in the same paragraph fully dispose of Smith Exhibits 6, 7, and 8, there is no necessity for elaborating on the quoted sentence.

The party Smith contends that the party Sauer's Gebrauchsmuster is in no way a proper part of the record in the present case and that it was improperly considered. In the paragraph beginning on line 6 of page 14 of the decision rendered April 13, 1943 the only holding with respect to the Gebrauchsmuster was phrased as follows:

> Whether this Gebrauchsmuster constitutes a constructive reduction to practice, as claimed by the senior party, or whether it is not a constructive reduction to practice because inoperative, as claimed by the junior party, need not be decided, for Sauer's U. S. filing date is sufficient to give him the award of priority.

The remainder of this same paragraph consists of statements of fact or of law which appear to be correct.

The party Smith insists that the question of Sauer's right to make the count was properly raised at final hearing and calls attention to the decision of *Summers* v. *Esau,* 485 O. G. 513, 1937 C. D. 8, 36 U. S. P. Q. 75. This case was considered in arriving at the original decision, but the decision does not relieve a party attacking a patentee's right to make the count from the necessity of filing a motion under Rule 122; only the procedure to be followed in disposing of such a motion is prescribed. The party Smith has failed to comply with the provisions of Rule 130, although a motion period was set in Interference No. 78,603, the predecessor of the present interference, and the rule of law set forth in *Crane and Stout* v. *Carlson,* cited on page 13 of the decision of April 13, 1943, is equally applicable when a patentee's disclosure is attacked. The party Smith states "that the Board here can, and should, consider the question of the sufficiency of Sauer's disclosure on their own motion and wholly apart from our other reasons for such action" (Smith petition for reconsideration, p. 21). Obviously, a direct evasion of the requirements of Rule 130 is involved when a party is heard to urge the practice of *Smith* v. *Foley* v. *Anderson* v. *Smith,* 136 O. G. 847, 1908 C. D. 210.

Under miscellaneous matters the party Smith urges that Blake's testimony should have been considered on the question of Smith's diligence. The party Smith does not contend that Blake has accounted for the entire period from just prior to Sauer's filing date of December 30, 1937, until Smith's filing date of June 26, 1940, and an examination of Blake's testimony reveals no evidence of diligence since the middle of 1939 except for the occasional coating of plates (Smith record, p. 36, Q. 30). The party Smith states that

> criticism directed against the testimony of one witness with respect to certain exhibits (for example, Chubb and Exhibits 6, 7 and 8) will be found met and covered by the testimony of other witnesses (for example, Smith)

(Smith petition for reconsideration, p. 22). This statement completely disregards the necessity for corroboration, for the inventor himself cannot overcome the weaknesses in the testimony of his corroborating witnesses. The party Smith points out that the defects mentioned in Exhibit 14 disappear when the foil is coated with adhesive. There is no proof of this in the Smith record and, as pointed out on page 8 of the original decision, there is no evidence that a film as described in Smith Exhibit 14 was ever applied to a base and successfully tested.

Reconsideration of the decision of April 13, 1943, is granted to the extent indicated above and that decision is adhered to as amplified above.

Since fifteen calendar days still remain within the original appeal period of forty days, computed according to Rule 149, the original period of forty days is not extended (Rule 149).

W. E. Waite,
Examiner of Interferences.
P. I. Heyman,
Examiner of Interferences.
Louis F. Kreek,
Examiner of Interferences.
Board of Interference Examiners.

May 13, 1943.

Chubb's Deposition.

Q. 50. Was this the first disclosure to you by Mr. Smith of devices of this kind, or was it one of the early disclosures? A. It was one of the early disclosures.

Q. 51. So that there had been still earlier discussions between you and Mr. Smith of structures of this kind? *A.* Do you refer to this specific structure?

Q. 52. No, I refer generally to structures in which there was to be a polarizing portion surrounded in whole or in part by a non-polarizing portion into which the polarizing portion merged, the whole to be affixed to a transparent support. *A.* In that case, yes, there had been earlier disclosures.

Q. 53. Will you please describe in substance what Mr. Smith disclosed to you, and will you please fix as nearly as you can the dates of those disclosures. *A.* Prior to March of 1936, Mr. Smith and I had from time to time discussed polarizing structures intended principally for use in front of the headlights of automobiles in which the polarizing effect was partial in the sense that part of the area which was intended to transmit the beam from the headlight was polarizing and part of the area was non-polarizing or polarizing to a lesser degree than the first mentioned area.

Q. 54. Let me interrupt. When you use an alternative expression of that kind, do you mean it was either one or the other, or do you mean you discussed both possibilities. *A.* We discussed both possibilities.

Q. 55. Can you say approximately when these discussions began with respect either to your date of first association with Polarized Lights in July, 1932, or to the disclosure in March, 1936, to which you have already referred? *A.* These discussions were definitely prior to March, 1936, and my best recollection is that they were within six months of my first association with Polarized Lights.

Q. 56. That is, these discussions you believe began at least as early as the first part of 1933? *A.* Yes.

Q. 57. Now you mentioned discussions relating to the positioning in front of a headlight of a certain structure including polarizing material. Was it intended that the polarizing material was to be protected? *A.* Yes.

Q. 58. How? *A.* By laminating it between supporting elements.

Q. 59.Were those elements to be transparent or opaque? *A.* Transparent.

Q. 60. Returning again to Exhibit 1 for identification, was the structure shown in the sketch in that exhibit to be prepared as a separate structure prior to the lamination, or was the polarizing portion of that structure to be embedded in the transparent plastic film at the time the lamination was made? *A.* Either one, I should say.

* * * * *

Q. 72. Have you had prepared a photostat of this page? *A.* Yes.

Q. 73. Do you feel free to produce this photostat as an exhibit in this case? *A.* Yes.

Q. 74. Can you tell us in more detail what the book is from which you have produced this photostat? *A.* The book is a volume of notes showing my day-to-day work as an employee of Polarized Lights while working at the plant of du Pont Viscoloid Company, and was written in ink by me and each page signed and dated.

Q. 75. As to page 16, a photostatic copy of which you have produced, can you tell me when that page was written? *A.* It was written on March 12, 1936.

* * * * *

By Mr. Brown: I offer in evidence as Smith Exhibit 2 photostat of page 16 of the book referred to by the witness.

(Received in evidence and marked Smith Exhibit 2).

* * * * *

Q. 88. In the third paragraph there is a reference to ZA-4, and the same reference appears in the sketch immediately following this paragraph. What was that? *A.* ZA-4 was the symbol by which methyl methacrylate polymer was known in the du Pont plant.

Q. 89. Is methyl methacrylate, when polymerized in the manner described by you, transparent? *A.* Yes.

Q. 90. The sketch refers to I.S.Q. film. What is that? *A.* That is the polarizing film containing iodosulphate of quinine crystals which we were using for our light-polarizing medium.

* * * * *

Q. 101. Was this work sporadic or was it substantially continuous? *A.* It was continuous.

Q. 102. Do you have other records of this work from your day-by-day notes? *A.* Yes.

* * * * *

Q. 110. Did you, either alone or with Mr. Smith, ever test these laminations of polarizing material in polymerized plastic such as you have described, to see whether the polarizing properties of the sheet had been altered by the process? *A.* Yes.

Q. 111. Do you know when you first made such tests? *A.* Yes. On March 13, 1936.

Q. 112. Have you any record of such a test having been made? *A.* Yes. Page 17 of my notebook.

Q. 113. That refers to what? *A.* That refers to a red cut-off.

Q. 114. And what does that indicate? *A.* That indicated that the polarizing material had been attacked.

Q. 115. Do you have any record of a subsequent test where a different result was obtained? *A.* Yes. On page 19 of my notebook.

Q. 116. Will you produce a photostatic copy of that page? (Witness does so.)

By Mr. Brown: I offer in evidence photostat produced by the witness as Smith Exhibit 4.

(Received in evidence and marked Smith Exhibit 4.)

Q. 117. With respect to the test referred to in Exhibit 4, can you tell me when it was performed? *A.* On March 16, 1936.

Q. 118. And who was present? *A.* Mr. Smith and I.

Q. 119. What were the results of the test? *A.* The results showed that the transmission and extinction of the methacrylate-laminated visor were satisfactory.

* * * * *

Q. 124. Can you produce photostats of pages from your book showing continued test along the lines of your testimony in early April, 1936? *A.* Yes. I produce herewith photostatic copies of pages 43 and 44.

* * * * *

By Mr. Brown: I offer in evidence as Smith Exhibit 5 photostatic copies of pages 43 and 44 of the witness's book, and state that Smith will rely only upon the disclosure dated April 3, 1936.

* * * * *

Q. 212. Do you find in your notes, during the period in question, references to the use of glass in connection with the manufacture of laminations employing polarizing film? *A.* Yes. There are many cases of the use of glass.

Q. 213. Can you produce some of these references? *A.* I produce a photostatic copy of page 29 of another of my day-by-day notebooks covering the period of from July 6, 1937 to March 10, 1938. This page refers to work done from the 7th to the 12th of September, 1937, and was written by me on September 12, 1937, and signed at my request by Mr. Paggi as witness on September 13. I call attention particularly to the notation under date of September 10, 1937, to the start of laminations of glass headlight disks, and to the notation on the bottom of the page that I received five hundred glass disks from the Newark Glass Company for further experimentation.

By Mr. Brown: I offer in evidence as Exhibit 15 the photostat of the page produced by the witness.

(Received in evidence and marked Exhibit 15.)

* * * * *

Q. 238. We have so far been discussing light-polarizing films in which the polarizing area merged into a non-polarizing, transparent area. Did you ever see or make, during your employ by Polarized Lights, any polarizing films which included opaque areas and light-polarizing areas? *A.* Yes.

Q. 239. Did you make such films? *A.* Yes.

Q. 240. Can you fix approximately the date when you first made such films? *A.* Yes. January, 1936.

Q. 241. What did the opaque portions of these films consist of? *A.* Rather small spots or specks, and in some cases elongated streaks, of iodosulphate of quinine crystals.

Q. 242. In what condition were the crystals forming these spots or streaks? *A.* In the cases of spots or specks, they were in a randomly oriented condition. In the case of streaks, where the density of the dark areas varied from one end to the other, they were in a state varying from complete disorientation to substantially perfect orientation.

Q. 243. And what did the transparent portions of these films comprise? *A.* Oriented iodosulphate of quinine crystals in the plastic suspending medium.

Q. 244. Am I correct in understanding your testimony to be that a suspension of crystals of iodosulphate of quinine is transparent where the suspended crystals are oriented in substantial parallelism, and is less and less transparent as the condition of orientation departs from substantial parallelism and approaches heterogeneous irregularity? *A.* Yes, that is correct.

Q. 245. Am I correct in understanding that at least as early as January, 1936, you produced films having these properties? *A.* Yes.

Q. 246. Can you produce any such films here? *A.* No. They have been destroyed.

Q. 247. Will you tell me whether or not, during the entire period of your employment by Polarized Lights, from the summer of 1932 until March, 1938, you were working under the direction of Mr. Robert A. Smith? *A.* Yes, I was.

Smith's Deposition.

Q. 9. Now during your work in polarized lights, will you state, when you first conceived the idea of using a light polarizer having varying polarizing properties over its area? *A.* At least as early as February, 1932, at which time I made a record of such a conception.

Q. 10. I show you Smith's Exhibit 18 and ask you if that is a photostatic copy of the record you refer to? *A.* It is.

* * * * *

Q. 16. Will you state the substance of any supplemental disclosure which you made to Mr. Serrell or to Mr. Pine on the date they witnessed Exhibit 18? *A.* At this late date I cannot quote exactly but my discussion with them would indicate the utility of why I wanted part of the screen unpolarized and part polarized.

Q. 17. Why did you want the screen so arranged? *A.* In this particular instance it was because of the desirability of obtaining a greater light transmission through certain portions of the screen or headlight and yet retain full polarization or nearly full polarization of the light transmitted through other portions of the screen or headlight.

Q. 18. Do you remember whether you disclosed to either Mr. Serrell or Mr. Pine how such a screen might be made? *A.* At this late date I cannot give you a definite answer, except that at the time I would have probably reduced or removed the polarized material from that portion of the screeen desired to be unpolarized or partially unpolarized.

* * * * *

Q. 49. Who is Mr. L. W. Chubb, Sr.? *A.* He was one of our important stockholders and associates in the development of Polarized Lights, Inc. He is the father of L. W. Chubb, Jr. L. W. Chubb, Sr. was kept informed almost constantly of the various details of our development and applications of automobile headlighting with polarizing light.

* * * * *

Q. 101. Now how active were you in the period from March, 1936 to March, 1938, in directing the work of Lewis W. Chubb, Jr.? How frequently, for example, did you visit him at the Dupont plant? *A.* I was constantly in contact with this, taking all necessary time to guide and assist his work. Somewhat roughly, I would estimate that at least half of my working time was devoted to discussing and assisting him.

Q. 102. Did you make frequent trips to Arlington? *A.* Three or four times a week, or oftener if necessary.

Q. 103. Did he ever come to see you in Newark or at your home? *A.* He did, very frequently.

Q. 104. Have you read the testimony which Mr. Chubb previously gave in this interference? *A.* I have.

Q. 105. Can you state whether it is or is not substantially correct? *A.* It is correct.

Q. 106. In several of the exhibits offered in evidence comprising photostatic copies of page from Mr. Chubb's day by day note book—and I refer to Exhibits 2, 3, 4, 5, 11, 12, 14 and 15,—reference is made by Mr. Chubb to suggestions made by "R.A.S.", or to conferences with "R.A.S.", and to conferences with "J.J.S.", and to road tests, or other tests made in conjunction with "R.A.S." Mr. Chubb has testified that the "R.A.S." referred to is yourself. Can you state whether you recall these conferences and road tests? *A.* I do. He is correct.

* * * * *

Q. 134. Were these tests frequently made at your home in Mahwah, or were they made at the plant of Dupont in Arlington? *A.* Mostly the tests on the actual automobiles were made at or near my home at Mahwah, New Jersey.

Q. 135. And were you present at these tests? *A.* I was present at many of the tests and probably at all of them. I cannot specifically say all of them without having the dates verified, but I do not recall any that were made without my presence, as I was most definitely interested and concerned with it in every way.

Tom C. Clark

BRIEF FOR ~~JAMES E. MARKHAM~~, APPELLEE

United States Court of Appeals

DISTRICT OF COLUMBIA

No. 9349

POLAROID CORPORATION AND ROBERT A. SMITH,
APPELLANTS

Tom C. Clark v. Attorney General
~~JAMES E. MARKHAM AS ALIEN PROPERTY CUSTODIAN~~

AND

CASPAR W. OOMS AS COMMISSIONER OF PATENTS,
APPELLEES

APPEAL FROM A JUDGMENT OF THE DISTRICT COURT OF THE UNITED STATES FOR THE DISTRICT OF COLUMBIA

JOHN F. SONNETT,
Assistant Attorney General,
HARRY LeROY JONES,
M. S. ISENBERGH,
DAVID SCHWARTZ,
SAMUEL Z. GORDON,
Attorneys for Appellee James E. Markham,
Department of Justice,
Washington 25, D. C.

RAOUL BERGER,
General Counsel to the Alien Property Custodian,
Of Counsel.

United States Court of Appeals
for the District of Columbia
FILED SEP 23 1946
Joseph W. Stewart
Clerk

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United States Court of Appeals

DISTRICT OF COLUMBIA

No. 9349

POLAROID CORPORATION AND ROBERT A. SMITH,
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v.

JAMES E. MARKHAM AS ALIEN PROPERTY CUSTODIAN
AND
CASPAR W. OOMS AS COMMISSIONER OF PATENTS,
APPELLEES

APPEAL FROM A JUDGMENT OF THE DISTRICT COURT OF THE UNITED STATES FOR THE DISTRICT OF COLUMBIA

BRIEF FOR JAMES E. MARKHAM, APPELLEE

COUNTERSTATEMENT OF THE CASE

The statement of the case set forth in the brief for the appellants (pp. 2–5) is believed sufficient with the exception of the appellants' conclusions as to the testimony of witnesses before the district court (pp. 4–5) and the statement of the holding of the court below, particularly with respect to the finding of the district court on the operativeness of the Sauer specification (*cf.* Conclusion 5, App.[1] 19 and Conclusion 3 (b), App.

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[1] In this Brief, "App." will be used to refer to the Joint Appendix, printed together with the appellants' brief.

99 with Appellants' Brief, p. 5). The decision of the trial court is fully set forth in the findings and conclusions (App. 90–99), which were entered in response to this Court's mandate on the first appeal (App. 88–90).

With respect to the question of prior conception and reduction to practice, the district court found that the plaintiffs-appellants (who will hereafter be referred to as "Smith") conceived the invention in issue on April 13, 1936, prior to the filing date of Sauer (the predecessor of the defendant-appellee Markham) (Fdg. 11, App. 93); that Smith had not sought to prove, nor did the evidence disclose, that he was diligent in reducing the invention to practice (Fdg. 25, App. 96); that Smith had neither proved that he had sufficiently embodied the invention in issue (Fdgs. 13–16, App. 93–94), nor that he adequately tested the invention in its intended application (Fdgs. 17–23, App. 94–96); that there was an unexplained delay of three or four years between the time Smith claims first to have reduced the invention to practice and the time Smith filed his application (Fdg. 24, App. 96); and that Smith has failed to prove that he reduced the invention to practice prior to Sauer's filing date or to Smith's own, subsequent filing date (Fdgs. 26–27, App. 96–97).

With respect to Smith's claim that the disclosure in Sauer's specification is inoperative, the district court found that Smith did not move in the Patent Office to dissolve the interference on this ground and that the Patent Office consequently refused to consider the evidence on this claim (Fdg. 28, App. 97); and that the evidence presented by Smith to support this claim was insufficient and did not prove the inoperativeness of Sauer's disclosure (Fdgs. 31–34, App. 97–98), which was in fact operative and sufficient as evidence of conception and a constructive reduction to practice of the invention in issue (Fdgs. 30, 35, App. 97, 98).

In accordance with these findings, the court awarded priority to Sauer (Fdg. 36, App. 98). In its conclusions of law, the court found (a) that Smith had failed to sustain the burden of proving that he had reduced the invention to practice prior to Sauer's filing date or that Sauer's disclosure is inoperative or that he, Smith, was diligent in reducing the invention to practice (Conclusions 2–3, App. 98–99); (b) that the Patent Office had correctly awarded priority to Sauer; and (c) that the patent had been properly granted to him (Conclusions 4–5, App. 99). The court ordered dismissal of the complaint (Conclusion 6, App. 99; App. 100), and this appeal followed.

STATUTES AND RULES INVOLVED

R. S. 483, Act of Feb. 14, 1903, c. 552, § 12, 32 Stat. 830; U. S. C., Title 35, § 6:

> The Commissioner of Patents * * * may, subject to the approval of the Secretary of Commerce, from time to time establish regulations, not inconsistent with law, for the conduct of proceedings in the Patent Office.

R. S. 4915, Act of Feb. 9, 1893, c. 74, § 9, 27 Stat. 436; Act of Mar. 2, 1927, c. 273, § 11, 44 Stat. 1336; Act of Mar. 2, 1929, c. 488, § 2 (b), 45 Stat. 1476;

Act of Aug. 5, 1939, c. 451, § 4, 53 Stat. 1212; U. S. C., Title 35, § 63:

> Whenever a patent on application is refused by the Board of Appeals or whenever any applicant is dissatisfied with the decision of the board of interference examiners, the applicant, unless appeal has been taken to the United States Court of Customs and Patent Appeals, and such appeal is pending or has been decided, in which case no action may be brought under this section, may have remedy by bill in equity, if filed within six months after such refusal or decision; and the court having cognizance thereof, on notice to adverse parties and other due proceedings had, may adjudge that such applicant is entitled, according to law, to receive a patent for his invention, as specified in his claim or for any part thereof, as the facts in the case may appear. And such adjudication, if it be in favor of the right of the applicant, shall authorize the commissioner to issue such patent on the applicant filing in the Patent Office a copy of the adjudication and otherwise complying with the requirements of law. In all cases where there is no opposing party a copy of the bill shall be served on the commissioner; and all the expenses of the proceedings shall be paid by the applicant, whether the final decision is in his favor or not. In all suits brought hereunder where there are adverse parties the record in the Patent Office shall be admitted in whole or in part, on motion of either party, subject to such terms and conditions as to costs, expenses, and the further cross-examination of the witnesses as the court

> may impose, without prejudice, however, to the right of the parties to take further testimony. The testimony and exhibits, or parts thereof, of the record in the Patent Office when admitted shall have the same force and effect as if originally taken and produced in the suit.

Rules of Practice in the United States Patent Office, Revised February 1, 1940, U. S. C. A., Title 35, Appendix:

> Rule 95. Before the declaration of interference it must be determined that there is common patentable subject matter in the cases of the respective parties. The issue must be clearly defined and be patentable to the respective parties, subject to the determination of the question of priority.
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> In case the subject matter in controversy has been patented to one of the parties but is deemed by the examiner not to be patentable to an applicant, he shall call the case to the attention of the Commissioner.
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> Rule 122. Motions to dissolve an interference (1) alleging that there has been such informality in declaring the same as will preclude the proper determination of the question of priority of invention, or (2) denying the patentability of an applicant's claim, or (3) denying his right to make the claim, or (4) if the interference involves a design patent or an application, alleging that there is no interference in fact and also motions to shift the burden of proof, should contain a full statement of the grounds relied upon and should, if possible, be made within the time fixed by the examiner of interferences, not

less than thirty days, after the statements of the parties have been received and approved. Such motions and all motions of a similar character, if in the opinion of the examiner of interferences they be in proper form, will be heard and determined by the primary examiner, due notice of the day of hearing being given by the office to all parties. If in the opinion of the examiner of interferences the motion be not in proper form, or if it be not brought within the time specified and no satisfactory reason be given for the delay, it will not be considered and the parties will be so notified.

Rule 130. Where the patentability of a claim to an opponent is material to the right of a party to a patent, said party may urge the nonpatentability of the claim to his opponent as a basis for the decision upon priority of invention. A party shall not be entitled to raise this question, however, unless he has duly presented and prosecuted a motion under rule 122 for dissolution upon this ground or shows good reason why such a motion was not presented and prosecuted.

At final hearing between an application and a patent the prior art of record in the patent file shall be referred to for the purpose of construing the issue.

SUMMARY OF ARGUMENT

1. Smith, who filed his application after a patent was issued to Sauer, was required to prove prior, successful reduction to practice beyond a reasonable doubt and in this Court must show that the district court was clearly wrong in deciding that he had not met the burden of proof. The record shows that

Smith failed in his attempt to make a tapered polarizing film which would give the decreasing polarizing effect called for by the invention in issue; that he failed to make a lamination encasing such a film, and that the finished device was neither adequately nor successfully tested. Aside from these facts, the unexplained delay of more than four years between the time Smith claims to have reduced the invention to practice and the date of his application for a patent, is a circumstance indicating that Smith did not successfully reduce the invention to practice. The district court was correct in its decision.

2. Smith is barred under the terms of Rule 130 of the Rules of Practice in the Patent Office from raising the question of the inoperativeness of Sauer's disclosure since he failed to make a motion in the Patent Office under Rule 122 to dissolve the interference on this ground.

3. Even if Smith is not barred from raising the issue, it has been resolved in Sauer's favor. The district court correctly held that Smith failed to prove Sauer's disclosure to be inoperative and that Sauer's disclosure is in fact operative. The testimony on behalf of Smith establishes at most that a polarizing film will become opaque if the polarizing crystals are disoriented to the degree that they overlap at right angles. Sauer's method was to scatter and disorient the crystals gradually. His disclosure did not call for right-angled overlapping of the crystals.

There is affirmative testimony in the record which, with the presumption of operativeness arising from the issuance of the patent, supports the finding that Sauer's device is operative.

ARGUMENT

I

The District Court correctly found that Smith had failed to prove reduction to practice of the invention

Sauer, as the senior party, need rely only on his filing date, December 30, 1937, to show priority of invention. Smith, the junior party, has sought to show conception and reduction to practice as early as April 13, 1936. He has shown that he conceived the invention in issue on that date (Fdg. 11, App. 93). But he has made no effort to show the diligence which would be a substitute for proof of actual reduction to practice (Fdg. 25, App. 96) and he was therefore required to prove that he successfully reduced the invention to practice before December 30, 1937, Sauer's filing date. 1 Walker on Patents (Deller's ed. 1937) §§ 102, 108. Smith has failed to present such proof.

The Patent Office held that Smith had not proved successful reduction to practice (Fdg. 8, App. 92–93; App. 118) and its decision is entitled to great weight. *Abbott* v. *Coe,* 71 App. D. C. 195, 197, 109 F. 2d 449, 451 (1940). And the district court also found that such proof had not been presented (Fdgs. 26–27, App. 96–97; Conclusion 3 (a), App. 99), and its findings will be sustained unless found to be clearly erroneous. Rule 52 (a), Federal Rules of Civil Procedure, U. S. C., Title 28, foll. § 723 (c); *Abbott* v. *Coe,* 71 App. D. C. 195, 109 F. 2d 449 (1940); *Katz Underwear Co.* v. *United States,* 127 F. 2d 965 (C. C. A. 3, 1942), *cert. den.,* 317 U. S. 655 (1942). As this Court said in *Abbott* v. *Coe,* "The presumption that the Patent Office is right is reenforced, in the present case, by the presumption that the trial court is right." 71 App. D. C. at 197, 109 F. 2d at 451.

Smith was required to prove prior, successful reduction to practice beyond a reasonable doubt. Sauer's patent issued on December 26, 1939, and it was not until six months later, on June 26, 1940, that Smith, copying the claim of Sauer's patent, filed his application (Fdgs. 3, 6, 7, App. 91–92; App. 85). Smith is thus junior to a senior party to whom a patent has already issued. A junior party in these circumstances is required to prove beyond a reasonable doubt that he is the prior inventor—in this case, that he reduced the invention to practice before December 30, 1937. Conclusion 2, App. 98–99;[2] *Coffin* v. *Ogden,* 18 Wall. 120 (1873); *Cantrell* v. *Wallick,* 117 U. S. 689 (1886); *Morgan* v. *Daniels,* 153 U. S. 120 (1894); *Sharer* v. *McHenry,* 19 App. D. C. 158 (1901); *Walker* v. *Altorfer,* 111 F. 2d 164, 27 C. C. P. A. Pat. 1130 (1940); *Smith* v. *Carter Carburetor Corporation,* 130 F. 2d 555 (C. C. A. 3, 1942); *Minnesota Mining & Mfg. Co.* v. *Van Cleef,* 139 F. 2d 550 (C. C. A. 7, 1943); 2 Walker on Patents (Deller's ed. 1937) p. 917. This burden of proof is imposed because of the public interest in avoiding the frauds which might otherwise result from the opportunity to examine issued patents before filing applications on the same invention. *Walker* v. *Altorfer, supra,* 111 F. 2d at 167–169, 27 C. C. P. A. Pat. at 1133–1136. See *The Barbed Wire Patent,* 143 U. S. 275, 284–285 (1892).

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[2] The district court phrased it as a "burden of proving by evidence which is clear and convincing and which carries thorough conviction." The difference between such a statement and the rule as stated in the text is one of phraseology. See *Morgan* v. *Daniels,* 153 U. S. 120, 123–125 (1894).

The issue, then, is whether the district court was clearly wrong in holding that Smith had failed to prove beyond a reasonable doubt that he successfully reduced the invention to practice before December 30, 1937.[3] A review of the evidence establishes that Smith's proof falls far short of meeting this burden.

(a) Smith failed in his attempt to make a polarizing film which would give a decreasing polarizing effect

The invention here in issue is a structure containing a transparent base, one surface of which is covered with a transparent foil, a portion of the foil acting as a polarizer and merging with decreasing polarizing effect into a surrounding nonpolarizing portion of the foil (Fdg. 3, App. 91). This area of decreasing polarizing effect is the major characteristic of the invention (Fdg. 30, App. 93). The Patent Office rejected several structures as evidence of conception because they did not contain such an area (App. 111–113). The evidence of conception which was found satisfactory was a sketch dated April 13, 1936, Exhibit 9, which shows a visor with a greater degree of polarization at the upper left hand corner than at the lower right hand corner, the result to be achieved by providing a polarizing sheet of tapered thickness (App. 59; Q. 156–172, App. 34–37). Taken in conjunction with testimony (Q. 181, App. 38; Q. 74, App. 53) that such a variable polarizing structure could be laminated or layered into a plastic adhesive structure such as is shown in Exhibit 1 (App. 58), Exhibit 9 was held by both the Patent Office and the district court to show conception (App. 113–114; Fdg. 11, App. 93).

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[3] In our brief on the earlier appeal in this case, we argued that Sauer was entitled not only to the benefit of his domestic filing date, but to the benefit of a date a year earlier, when his assignee filed an application for a Gebrauchsmuster in Germany (Brief for Appellee Markham, No. 8854, Point II, pp. 12–15). At that time the appellants contested this position, arguing that Sauer was entitled only to his domestic filing date (Appellants' Brief, No. 8854, pp. 21–23). The appellants now rest their case on proof of a reduction to practice on or about April 27, 1936, a date earlier than the dates of both Sauer's domestic and foreign applications (Appellants' Brief in this case, p. 32). In view of this, we agree with the appellants' statement (Brief, p. 32) that the question whether Sauer is entitled to the Gebrauchsmuster date is no longer relevant.

While Smith conceived the idea of a film giving a decreasing polarizing effect, his evidence of success in the production of such a film was found insufficient. On April 17, 1936, Chubb, a research physicist employed by Polaroid Corporation (Q. 1, App. 24) and working under Smith's direction (Q. 247, App. 131; Q. 101, App. 132), made a polarizing film of tapering thickness, designed to give the decreasing polarizing effect called for by Exhibit 9 and the invention in issue. The record of the manufacture of this film, a page from Chubb's day-by-day notebook, shows that the film was a failure. The page begins with the words: "setup did give an improvement in film surface, altho still far from perfect." The entry then continues: "Altho the nickel jaws were previously stoned smooth, jaw marks still are apparent in the thin sheets. Also the 'dimpled' surface is still evident. It was decided that the air blast arrangement was partly responsible for the latter and to make further changes in it." Farther on Chubb wrote: "Bronziness evident; about as bad as 3–31–36" (Ex. 14, App. 64; Q. 201–208, App. 40). "Bronziness," it may be noted, was on April 27, ten days later, still regarded as the "next problem to solve" (Plaintiffs' Ex. No. 7, App. 87).

Smith made no effort to explain Chubb's own criticisms of the film of April 17, and the Board of Interference Examiners concluded "that the attempt to produce tapered polarizing film was unsuccessful" (App. 114).[4] While Smith had another opportunity, in the district court, to explain the criticisms of the film, he again made no effort to do so. The district court found insufficient the evidence concerning the film of April 17, 1936, and combined its finding with the finding with respect to the lamination embodying the film (Fdg. 15, App. 94), discussed below.

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[4] The sketch held to show conception (Ex. 9, App. 59) suggested that a decreasing polarizing effect could be accomplished by superimposing sheets of film. There is, however, no testimony as to reduction to practice by the use of superimposed sheets. There is hearsay testimony that Smith, the inventor, made a tapering sheet by scraping down a standard sheet (Q. 209–211, App. 40–41), but there is no corroboration of this testimony and no evidence of the construction of a finished device with a scraped down sheet.

There was introduced a tapering film made on June 1, 1937 (Ex. 13; Q. 195–200, App. 39–40). This film was identified by Smith as typical of those made prior to April 29, 1936 (Q. 91, App. 55) and seems to have been treated as a sample of the film of April 17, 1936, which had been destroyed (Q. 173–208, App. 37–40).

Smith's case can thus rest only on the film of April 17, 1936.

Smith's case must fall by virtue of his failure to achieve successfully the major feature of the invention—a decreasing polarizing effect.

(b) Smith failed to make the lamination described by the count in issue

The Board of Interference Examiners also held that there was insufficient proof of reduction to practice for the additional reason that there was no evidence that tapered polarizing film was applied to a base of transparent material, *i. e.,* no evidence of the construction of a finished polarizing structure as specified in the count in interference (App. 114–118). This gap Smith attempted to supply by the introduction, in the district court, of another page from Chubb's day-by-day book. This page, Plaintiffs' Ex. No. 7, shows that on April 27, 1936, Chubb fabricated a 5-ply lamination of the tapering film of April 17, by enclosing the tapering film in layers of soft cellulose acetate and then enclosing the 3-ply result in layers of hard cellulose acetate (App. 87; Q. 6–30, App. 69–71; Fdg. 13, App. 93–94).

This lamination of April 27, 1936, was necessarily unsuccessful because it incorporated the imperfect tapering film of April 17, 1936, and the court properly rejected Plaintiffs' Exhibit 7 as proof of the embodiment of the invention in issue (Fdg. 15, App. 94).[5] Nor were the defects in the tapered film overcome in the later laminations incorporating a tapered film.[6] The court found (Fdg. 13, App. 94) and Smith concedes (Brief, p. 14) that later laminations were like that of April 27.

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[5] This lamination was also imperfect in the adhesion of the polarizing film to the enclosing layers. Chubb's record of the manufacture of these laminations shows that he increased, over the prior attempt, the amount of time the laminations were pressed under heat "to surely stick" (Plaintiffs' Ex. 7, App. 87). The next sentence reads "O. K., but adhesion *to ISQ sheet* does not seem as

It is therefore submitted that the imperfections of the laminations containing tapered polarizing film in and of themselves have prevented the appellants from meeting their burden of showing successful reduction to practice. From their own testimony, recorded at the time, it appears that they regarded both the film and the laminations as failures.

(c) Smith failed to test his laminations adequately or successfully

In still another respect, the evidence clearly shows that the appellants have not met their burden. Assuming that the tapered film and the laminations were effective or even perfect, the appellants have not shown that the finished device was ever successfully tested.

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good as with soft stock less seasoned." (Emphasis in original.) The ISQ sheet was the polarizing film used by the appellants (Q. 90, App. 128) and thus the laminations were defective in the crucial aspect of the adhesion of the polarizing film to the enclosing layers of cellulose acetate. Chubb's bare statement that the layers of soft cellulose acetate adhered to the film and acted as adhesive layers (Q. 16–17, App. 70) cannot contradict his written contemporaneous record that the adhesion was not as good as with "soft stock less seasoned." He did not explain this last quoted phrase nor testify to the successful making of a lamination with such soft stock.

[6] This conclusion holds true not only with respect to the imperfection of the film used but also with respect to the adhesiveness of the layers of the lamination. See *supra*, n. 5. While Chubb stated that the 1937 laminations were tested (Q. 59, App. 74) he did not say with what results or whether the adhesion was more successful than in the 1936 lamination.

Smith sought to prove two types of testing of his laminations—road tests and laboratory tests. Both types were found by the district court not to prove reduction to practice (Fdgs. 19–23, App. 95–96). The court found that the laboratory tests of the laminations did not show their utility in their intended use of eliminating headlight glare (Fdg. 22, App. 95–96). With respect to the proof of road testing, the court found it inadequate because it failed to show the conditions or the result of the road tests, with the exception that the proof affirmatively showed that the laminations were of no use in the elimination of headlight glare since the heat of the headlight would in a short time injure the polarizer within the laminations (Fdgs. 19–20, App. 95).

The appellants admit (Brief, p. 20) that, because of lack of heat resistance, the laminations were inadequate when used as headlight polarizers but they apparently contest the finding that the laminations were to be used exclusively in headlight glare eliminating systems (Fdg. 14, App. 94), and that they must therefore be proven to have been adequately tested in this application (Fdg. 17, App. 94). The appellants also urge that the laboratory tests of the laminations as visors were sufficient and were successfully conducted (Brief, pp. 13, 14–16). Each of these contentions is rebutted by the record.

Smith testified that the work was on "automobile headlighting with polarized light" (Q. 49, App. 132); that he and his associates produced "complete polarizing screens, which we used in the actual performance of polarized headlighting of automobiles" (Q. 130, App. 56); that tests were made on all these products; and that he was present "probably at all" the tests "on the actual automobiles" (Q. 134–135, App. 133); and, at another point, that he witnessed "every road test" (Q. 18, App. 78). In describing what was done at the road tests, Smith explained that the laminations were used in a two-fold fashion—they were placed over the headlight of one car and as a visor or part of the windshield of another and that the effect of the optical crossing of the two polarizing films was to blank out the glare of the oncoming headlights (Q. 15–20, App. 77–78). "In other words," he said, "we tested them out under practical road conditions. That is what we meant by 'road tests' " (Q. 18, App. 78).

This testimony completely disposes of the appellants' suggestion (Brief, p. 18) that the laminations were so simple as to require no testing. Smith's own conduct shows the contrary to be the fact. This testimony, moreover, supports the findings that the laminations were to be used exclusively in headlight glare eliminating systems (Fdg. 14, App. 94), that the laminations were to be used in a two-fold fashion, over the headlights of the approaching car and as a visor or part of the windshield of the viewer and that the laminations were used in conjunction with one another in this fashion and not separately (Fdg. 19, App. 95). The picture presented is one of intensive work on a device to be used over headlights so as to eliminate their glare. The only way to determine whether the device worked was to test it on the road. In the words of the Board of Interference Examiners, "a headlight system must be tested as a headlight" (App. 123).

Chubb gives further support for the conclusion that only road tests were believed to be of value. Indeed, he seems to have regarded his work in making the laminations as merely a preliminary to road tests. He began his record of the making of another type of lamination with the words "This afternoon, to get material for an early road test" (Ex. 12, App. 63). Moreover, he plainly regarded the laminations as intended to be used over headlights. Of the laminations of April 27, 1936, he wrote "kept this for headlight heat test" (Plaintiffs' Ex. 7, App. 87). And he testified to discussions with Smith, prior to March 1936, of "polarizing structures intended principally for use in front of the headlights of automobiles" (Q. 53, App. 126).

Smith and Chubb conducted these road tests between April 1936 and December 1937 (Q. 40–41, App. 72). Chubb kept careful, written day-by-day records of his work during this entire period and was apparently able to produce or refer to these records at will (Q. 65–67, App. 29–30; Q. 74, App. 127–128; Q. 102, App. 128; Q. 124, App. 129; Q. 212, App. 130), yet no written record of any road tests (or, indeed, any tests) of these films and laminations was submitted. Neither Smith nor Chubb gave any details of road tests except to admit that the heat of the headlight bulb injured the lamination after a relatively short time (Q. 34, App. 72). On this record, the district court had no choice but to find insufficient the testimony as to laboratory testing, on the ground that it was unrelated to the intended use of the lamination (Fdgs. 22–23, App. 95–96). The court was equally correct in finding insufficient the testimony as to road testing, on the ground that it did not show the conditions or results of the road tests nor any results other than that the lamination was injured by the heat of the headlight when used in the two-fold fashion described above (Fdgs. 19–21, App. 95).

Smith states, in his brief at pp. 14–15, that in findings 19 and 20, the court "conceded that the testimony established a use of these laminations in road tests as visors." A reference to the cited findings (App. 95) shows the inaccuracy of this statement. There was no testimony as to the road testing of the laminations as visors, except in conjunction with headlight screens (see the discussion of Smith's testimony, *supra,* pp. 15–16), and that testimony gave no results as to the portion placed over the windshield. The only other testing of the laminations was in Chubb's laboratory and that testimony is insufficient, not only because it is unrelated to the intended use of the lamination, but also because the evidence of laboratory testing is entirely inconclusive.

The totality of this evidence is Chubb's testimony that the lamination of the inner and outer cellulose acetate layers to the polarizing film did not affect the polarizing properties of the film (Q. 36–37, App. 72; Q. 60–61, App. 74); that he examined every lamination he made by "analyzing the light polarized by it with another screen" (Q. 38–39, App. 72); and that "nothing whatever" happened when he used the lamination as a viewing device (Q. 35, App. 72).

The court found (Fdg. 13, App. 93–94) that the inner and outer layers of cellulose acetate encasing the polarizing film did not affect the polarizing properties of the film. This is far short of successful testing of the device, whether as a viewer, as a visor, or as a headlight screen. It shows only that the joining of the film with the plastic layers did not destroy the efficacy of the film as a polarizing medium; it does not show that the finished structure would hold together or would work in any application.

It is equally inconclusive that Chubb "analyzed," with another screen, the light polarized by the laminations. He did this in order to verify that the polarizing film could still polarize light. Every textbook on physics explains that the phenomenon of polarization is observed by allowing light to pass through a polarizing medium and then through an analyzer. The analyzer possesses no special characteristics; it is merely another polarizing medium—either crystal or film (Weniger, *Fundamentals of College Physics* (American Book Co. 1940) pp. 629, 631–632; Black, *Introductory Course in College Physics* (Macmillan 1941), pp. 685–687). The first crystal, the polarizer, is arbitrarily held so that the plane of light it transmits is vertical, *i. e.,* it eliminates all the light vibrations except the vertical ones. If the second polarizer, the analyzer, is held in a parallel position, it will transmit all the vertical light vibrations transmitted through the first polarizer. If, however, the analyzer is rotated 90 degrees in relationship to the polarizer, *i. e.,* set with its plane horizontal, no light will pass through it. In this position it eliminates the vertical vibrations of light which were transmitted through the polarizer. By this 90-degree test with an "analyzer," the observer may verify that polarization is taking place. If the polarizer is not operating, the light transmitted by it will be unpolarized, *i. e.,* consisting of both vertical and horizontal vibrations, and the analyzer will not be able to blank out that light but will operate only as a polarizer. If polarization is taking place, the analyzer will, by the use of the 90-degree test, blank out all the polarized light.

While the laboratory analysis was a test of the continuing effect of the film as a polarizer, nothing was shown of the efficacy of the lamination as a visor or viewing device. The only information is Chubb's cryptic statement that "nothing whatever" happened when he used the lamination as a viewing device (Q. 35, App. 72). And yet Chubb kept day-by-day documentary records (Q. 65–67, App. 29–30; Q. 74, App. 127–128; Q. 102, App. 128; Q. 124, App. 129; Q. 212, App. 130).

In the course of these so-called laboratory tests there was apparently no effort made to duplicate service conditions, in this case road conditions, the necessary prerequisite for the acceptability of laboratory tests. *Chittick* v. *Lyons,* 104 F. 2d 818, 26 C. C. P. A. Pat. 1382 (1939); *Sperry* v. *Aufiero,* 134 F. 2d 174, 30 C. C. P. A. Pat. 908 (1943). Although Chubb had criticized the adhesion of the lamination (Ex. 7, App. 87) no test was made to determine whether wind, rain, or the vibration of a moving car would loosen the adhesion of the layers. The courts have repeatedly held that inventions to be used on moving automobiles must be tested on the moving automobile. *E. g. Malcom* v. *Richards,* 47 App. D. C. 582 (1918) (automobile light absorbing member attached by suction); *Jobski* v. *Johnson,* 47 App. D. C. 230 (1918) (tire fastening device); *Keefe* v. *Watson,* 142 F. 2d 283, 31 C. C. P. A. Pat. 1080 (1944) (flexible rubber tire valve stem). Finally, no test was made to determine whether the device would operate in the dark, when the evil of headlight glare must be balanced against the need for visibility along the road, visibility which is cut down by the use of any polarizer (Q. 162, App. 35; Q. 70, App. 52; Q. 17, App. 132).

We can only conclude, from Chubb's testimony with respect to laboratory testing, that either no tests were made because laboratory testing was inappropriate for the device as a headlight screen or that tests of the device as a visor were made, and that they showed the device a failure.

The court's finding that the appellants have not shown successful reduction to practice beyond a reasonable doubt could be fully supported by the facts as to any one of the three stages of the appellants' work on the invention. They failed in their efforts to produce a tapered polarizing film; the laminations built from this film were necessarily imperfect; and, finally, what testing of the structure took place resulted in failure. If any further support for the court's finding is deemed necessary, it is found in Smith's inordinate delay in filing an application for a patent. The district court held that the appellants had not satisfactorily explained the discrepancy between the claim of reduction to practice in April 1936 and the failure to file an application until more than four years later, on June 26, 1940, only after the grant of a patent to Sauer. As the court put it, "This long and unexplained delay in plaintiffs' filing an application for patent is a circumstance indicating that there was no reduction to practice in 1936 and 1937" (Fdg. 24, App. 96). The authorities fully support this conclusion. *Minnesota Mining & Mfg. Co.* v. *Van Cleef,* 139 F. 2d 550 (C. C. A. 7, 1943); *Van Cleef* v. *Tierney,* 118 F. 2d 911, 28 C. C. P. A. Pat. 1039 (1941); *Sundberg* v. *Schmitt,* 58 App. D. C. 292, 29 F. 2d 880 (1928); *Paul* v. *Hess,* 24 App. D. C. 462 (1905); *Bennett* v. *Fitzgerald,* 48 F. 2d 917, 920, 18 C. C. P. A. Pat. 1201 (1931). In opposition to this finding, Smith argues (Brief, pp. 22–23) that once there is reduction to practice, there is no obligation upon the inventor to file an application promptly, so long as he does not abandon it. The argument begs the question. The delay in filing was found to be a circumstance indicating that there never had been a reduction to practice. The appellant is indeed on the horns of a dilemma. The cases cited above show that the courts have frequently held that a long, unexplained delay is a circumstance indicating that there has been no reduction to practice. If it be believed that Smith did, as he claims, accomplish reduction to practice in April 1936, it is clear that he was stirred into activity only by the issuance of a patent to Sauer, more than four years later. In such circumstances, and in view of Smith's failure to account for his activities during this period, there becomes applicable the rule of ***Mason*** v. *Hepburn,* 13 App. D. C. 86 (1898). Under that rule an inventor who reduces to practice but nevertheless deliberately fails to apply for a patent and give the public the benefit of his invention, is held, as against a later inventor, to have abandoned his invention. *Mathes* v. *Burt,* 24 App. D. C. 265 (1904); *Lederer* v. *Walker,* 39 App. D. C. 122 (1912); *Miller* v. *Hayman,* 46 F. 2d 188, 18 C. C. P. A. Pat. 848 (1931). The affirmative proof (Appellants' Brief, p. 23) necessary to show abandonment is found in the long and unexplained delay in filing a patent. *Re Mower,* 15 App. D. C. 144, 154 (1899); *Lederer* v. *Walker, supra,* at pp. 125–128.

II

Smith is barred from questioning the inoperativeness of Sauer's disclosure because he failed to comply with the Patent Office rules

Smith's failure to comply with Rules 122 and 130 of the Patent Office prevents him, in this proceeding, from attempting to show that Sauer's disclosure is inoperative, *i. e.,* that Sauer's specification is insufficient to show prior conception and reduction to practice. Testimony on this issue was admitted below over Sauer's objection, and the court postponed decision until the closing of the case (App. 79, Tr. 14–19). The court did not specifically pass on the effect of Smith's noncompliance with the Rules, but rather found the evidence insufficient to prove inoperativeness (Fdgs. 30–35, Conclusion 3 (b), App. 97–98, 99). In Point III, *infra,* we shall show that this finding is fully supported but we nevertheless wish to stress that the entire question of inoperativeness is not open to the appellants.

Under Rules 122 and 130 of the Patent Office, set out *supra,* pp. 5–6, Smith was required, in order to raise the issue of Sauer's right to make the claims, to move to dissolve the interference on that ground or to show good reason for his failure so to move. The appellants apparently concede that Smith did not make such a motion and has not attempted to excuse his failure to do so (Fdg. 28, App. 97; Appellants' Brief, pp. 6–9). Accordingly, the Patent Office refused to consider the question (App. 118, 124–125). The consequence of this default is that Smith may not raise the question in the courts. Unless a party to an interference makes the appropriate motion under Rule 122 he may not urge before the Patent Office or in the courts the questions he should have raised by motion. *Isom* v. *Dubbs,* 58 App. D. C. 25, 24 F. 2d 467 (1928); *White* v. *Wege,* 44 App. D. C. 495 (1916); *Harvey* v. *Short,* 55 App. D. C. 199, 4 F. 2d 165 (1925); *Rocke* v. *Bogdonoff,* 56 App. D. C. 140, 10 F. 2d 1005 (1926); *Ireland* v. *Smith,* 97 F. 2d 95, 25 C. C. P. A. Pat. 1258 (1938); *Crane* v. *Carlson,* 125 F. 2d 709, 29 C. C. P. A. Pat. 879 (1942), and cases cited therein. This Court has explained that the reason for insisting on the enforcement of Rules 122 and 130 is that they have the force of law and are designed to insure the good faith of the parties. *Harvey* v. *Short, supra.* A party to an interference proceeding may not await the decision on the issue of priority and then, if it is adverse to him, raise a question of patentability. Noncompliance with the rules, it was pointed out, would lead to delay and expense in interference proceedings.

Both the courts and the Patent Office have reserved the right to consider questions under Rule 122 in the absence of a motion, but only where the question is perfectly plain on the record. *White* v. *Wege, supra; Harvey* v. *Short, supra; Smith* v. *Foley* v. *Anderson* v. *Smith,* 136 O. G. 847, 1908 C. D. 210. The very fact that appellants must rely on testimony, however, makes it clear that the issue of inoperativeness of Sauer's disclosure is far from plain on the record. The Board of Interference Examiners was therefore entirely correct in refusing to consider the question on its own motion (App. 36–37).

In an effort to overcome the effect of Rules 122 and 130, Smith urges the familiar principle that a proceeding under R. S. § 4915 is one *de novo* and is not confined to the record before the Patent Office. See *Butterworth* v. *Hoe,* 112 U. S. 50, 61 (1884). This principle describes the nature of a proceeding under R. S. § 4915 (set out *supra,* pp. 3–4) but the courts have uniformly respected Rules 122 and 130 in such proceedings. Nor does it avail Smith to invoke the rule that under R. S. § 4915, the court must find that there is invention in the patent to be issued to the plaintiff. *Hill* v. *Wooster,* 132 U. S. 693 (1890); *Radtke Patents Corporation* v. *Coe,* 74 App. D. C. 251, 122 F. 2d 937 (1941), *cert. den.* 314 U. S. 695. See *Hoover Co.* v. *Coe.* 325 U. S. 79, 89 (1945). Smith's attack on

Sauer's application is not based upon lack of invention but upon an alleged insufficiency of detail. The question of the inventive nature of the Sauer device was resolved in the affirmative at the time of the issuance of the patent to him (see Plaintiffs' Ex. 1) and, under Rule 95 (set out, *supra,* p. 5) again at the time of the declaration of the interference.

Smith cites (Brief, p. 23) *Kollsman* v. *Carbonara,* 88 F. 2d 966, 24 C. C. P. A. Pat. 1149 (1937), and *Creed* v. *Potts,* 96 F. 2d 317, 25 C. C. P. A. Pat. 1084 (1938) to support his argument that the issue of inoperativeness is open to him despite his failure to make a motion under Rule 122. His reliance upon these cases is misplaced. In both, a motion to dissolve the interference was made and, therefore, the question of the right of the opposing party to make the claim was open in the courts. In *Creed* v. *Potts,* the court specifically held that the Patent Office was not in error in refusing to consider grounds of inoperativeness which were not embraced in the motion. *Kollsman* v. *Carbonara* is illustrative of the beneficial effect of Rule 122. There the motion to dissolve narrowed the issues and the only question remaining for consideration was the right of the movant's opponent to make the claims corresponding to the counts involved.

The Rules of the Patent Office governing motions in interference proceedings are intended to bring order and method to the task of deciding the multiplicity of issues which the parties may seek to raise. In a recent case comparable to the one at bar this Court has again insisted that the issues be decided in strict compliance with the rules. *Geophysical Development*

Corporation v. *Coe,* 78 App. D. C. 39, 136 F. 2d 275 (1943), *cert. den.,* 320 U. S. 760. It is submitted that, because of Smith's failure to comply with Rule 122, this Court should enforce Rule 130 and refuse to consider the question of inoperativeness.

III

The District Court correctly found that Smith had failed to prove Sauer's disclosure to be inoperative and that Sauer's disclosure is in fact operative

We have shown above that Smith is disqualified from raising the issue of the inoperativeness or insufficiency of the Sauer specification. Even if this issue were open, it has been resolved in Sauer's favor by the district court's findings that the evidence presented by Smith did not show Sauer's disclosure to be inoperative, and that Sauer's disclosure was, in fact, operative (Fdgs. 29–35; Conclusion 3 (b), App. 97–98, 99).

The allowance of the Sauer patent by the Patent Office was a recognition that the disclosure was sufficient (Fdgs. 3, 35, App. 91, 98) and the burden of showing, beyond a reasonable doubt, that the specification is in fact inoperative rests upon Smith (see *supra,* p. 9). There is ample evidence to support the finding that this burden has not been met.

It is conceded (Appellants' Brief, p. 8, para. 15) that the novel feature of the Sauer count is that it describes a polarizing structure in which there is a gradual merger of the polarizing and nonpolarizing areas of the polarizing film, *i. e.,* an area of gradual lessening polarizing effect. This, the court found (Fdg. 30, App. 97), Sauer proposed to achieve by a gradual scattering and arranged irregular orientation of the polarizing crystals (App. 86, col. 2, lines 17–25). It does not avail Smith to argue (Brief, pp. 26, 29) that Sauer did not explain the details of how this gradual scatter is to be accomplished. It was rather incumbent on Smith to show, beyond a reasonable doubt, that one skilled in the art could not gradually scatter and disorient the crystals and thus make the device. Smith sought to assume this burden by the testimony of Blake, a research engineer in the employ of Smith's assignee, the Polaroid Corporation, one of the appellants. The question was whether the burden was met.

The appellants' argument is that Sauer's method will result in opacity. Their proof consists mainly (Appellants' Brief, pp. 27–28) of the well-known scientific phenomenon that if two polarizing elements, whether they be films or their component parts, crystals, are overlapped so that their polarizing axes are crossed at right angles, little or no light is transmitted and the result is opacity (see *supra,* pp. 19–20). There being no light transmitted, there can be no polarizing effect. The question, however, is not whether right-angled overlapping will produce opacity but rather whether some degree of disorientation and scattering of the individual crystals, overlapped at a lesser angle than a right angle or not overlapped at all, will produce transparency and a lessened polarizing effect. Blake testified that when the optical axes of the crystals are parallel, light will be transmitted by the even layers of the crystals (Q. 28, App. 82). He was next asked (App. 82):

> Q. 29. When the optical axes of the crystals are not parallel and the crystals overlie one another, what happens?

His answer shows the weakness of the appellants' case:

> A. Then the amount of light transmitted will be less [45] than when the crystals are all oriented parallel, and the amount of light transmitted will depend on the degree of disorientation or random position of the crystals themselves.

This question asks for the result of both disorientation *and* overlapping of the crystals and the answer shows that only extreme overlapping, *i. e.*, verging on right-angled overlapping, will lead to opacity. Yet Smith concludes, from this answer, that Sauer's method is inoperative and will actually produce decreasing transparency rather than increasing transparency and that this "necessarily follows" because "if the crystalline particles are disoriented *and* their axes crossed with respect to one another they will tend to form light-blocking units" (Brief, p. 28, italics not in original). But Sauer did not propose to cross the axes of the crystals. Blake was not asked about Sauer's method or whether he had tried to follow Sauer's specifications and thereby reproduce the invention. A junior party does not win his case by theoretical general evidence; he should show convincingly that conscientious efforts to make the device of the senior party have resulted in failure. *Lavin* v.

Pieroti, 129 F. 2d 883, 29 C. C. P. A. Pat. 1235 (1942). Indeed, even if Blake's testimony had been directed at that question, such testimony would not require a finding in the appellants' favor because Blake was in the employ of the appellants and was therefore an interested witness. *Bullard Co.* v. *Coe,* 79 App. D. C. 369, 147 F. 2d 568 (1945). Sauer proposed to scatter the polarizing crystals gradually and to arrange them in a disoriented fashion (App. 86, col. 2, lines 17–25) so that there would be a gradual lessening of the polarizing effect, merging into a completely nonpolarized, transparent area. This method cannot be shown to be inoperative by proof that complete disorientation and complete overlapping at right angles produces opacity (Fdgs. 31–32, App. 97–98). The court therefore properly concluded that Blake's testimony did not show that Sauer's method was inoperative; it showed "merely that disorientation will allow less transmission of light than orientation and that the amount of light transmitted will depend on the degree of disorientation and density of the crystals. There is nothing in Sauer's disclosure that requires the crystals to be disoriented in such a degree and to overlie one another in sufficient density to create opacity." (Fdg. 32, App. 97–98.)

Testimony by both Blake and Chubb shows that disorientation can be gradual and that such disorientation produces a gradually lessening polarizing effect, thus giving affirmative support to the finding that Sauer's specification is operative (Fdg. 30, App. 97). Chubb testified that as early as January of 1936 he made polarizing film which showed spots which were opaque areas and "in some cases elongated streaks" in which the crystals "were in a state varying from complete disorientation to substantially perfect orientation" (Q. 238–246, App. 130–131). Blake produced three samples of a polarizing film made in 1938 of which a narrow portion had a "gradually lessening polarizing effect" achieved by "a varying degree of orientation between the disoriented and the fully oriented areas." (Ex. 21, 22, 23, App. 43; Q. 28, App. 45; Q. 19, App. 43.) In these films, the gradual disorientation was accompanied by such an increasing overlapping of the crystals as to result in right-angled overlapping in the completely disoriented area, with consequent opacity (Q. 16, App. 43; Q. 27, App. 44) and it was for this reason that these films were rejected by the Patent Office as evidence of priority (App. 117–118). But Blake did not testify that he, or anyone skilled in the art, could not have avoided this overlapping by scattering or reducing the concentration of the crystals, as Sauer proposed to do.

On the basis of the testimony showing that a gradually lessening polarizing effect could be achieved, and the presumption of operativeness arising from the issuance of the patent, the court properly concluded that Sauer's device is operative (Fdgs. 30, 35, App. 97, 98).

There remains only the argument (Appellants' Brief, pp. 29–31), found not to have been proved (Fdg. 33, App. 98), that the application of heat to a polarizing film will not result in a gradual disorientation of the crystals but rather in the decomposition of the crystals, with a loss of polarizing effect.

The application of heat was put forward by the attorney prosecuting Sauer's application as a method for disorienting the crystals.

Blake testified that the application of heat to a polarizing film containing iodosulphate of cinchonidine suspended in the plastic carriers known to him would decompose the crystals before the plastic carrier became sufficiently soft to permit movement and disorientation of the crystals (Q. 8, App. 80; Q. 17–18, App. 81). Blake was, however, testifying only with respect to one type of crystal—iodosulphate of cinchonidine (Q. 8, App. 80)—the type being used by the appellants in their polarizing film (Q. 90, App. 128). He stated that there were no "commercial" polarizers on the market in 1937 other than the plastic carriers and crystals he had testified to but he admitted that there were "special crystalline types" (Q. 22, App. 81). While Smith interprets this statement by Blake as one referring to special types of crystals other than "known materials" (Brief, p. 31) Blake was in terms distinguishing between "special crystalline types" and "commercial" polarizers. This distinction makes his testimony valueless. Sauer is not limited to crystals and carriers in commercial use but may rely on all those known in the art, including the special types mentioned by Blake, without specifically designating them in his application as commercial or special. *Carnegie Steel Co.* v. *Cambria Iron Co.,* 185 U. S. 403 (1902). Sauer's invention or the resulting demand may make "commercial" that which was "non-commercial" for Smith or Blake. Blake's testimony proves no more than that heat would not be the appropriate method for disorienting iodosulplate of cinchonidine crystals.

It is therefore submitted that the district court was correct in finding that Smith failed to sustain his burden of proving that Sauer's disclosure is inoperative and in finding that Sauer's disclosure is operative. In any event, the appellants have not shown that the district court was clearly wrong in making these findings.

CONCLUSION

It is respectfully submitted that the judgment of the district court should be sustained for the reasons stated.

JOHN F. SONNETT,
Assistant Attorney General,
HARRY LEROY JONES,
M. S. ISENBERGH,
DAVID SCHWARTZ,
SAMUEL Z. GORDON,
Attorneys for Appellee,
JAMES E. MARKHAM,
Alien Property Custodian.

RAOUL BERGER,
General Counsel to the Alien Property Custodian, Of Counsel.

U. S. GOVERNMENT PRINTING OFFICE: 1946

REPLY BRIEF FOR APPELLANTS.

United States Court of Appeals for the District of Columbia.

United States Court of Appeals
for the District of Columbia
FILED NOV 12 1946
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Appeal No. 9349.

POLAROID CORPORATION AND ROBERT A. SMITH,
Appellants,

Tom C. Clark v. Attorney General

~~JAMES E. MARKHAM AS ALIEN PROPERTY CUSTODIAN~~
AND
CASPAR W. OOMS AS COMMISSIONER OF PATENTS,
Appellees.

APPEAL FROM THE DISTRICT COURT OF THE UNITED STATES.

CECIL A. BEASLEY,
American Security Building, Washington, D. C.
Counsel for Appellants.

DONALD L. BROWN,
CHARLES MIKULKA,
Of Counsel.

L. H. LANE COMPANY, LAW PRINTERS, 221 HIGH ST., BOSTON, MASS.

IN THE

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APPELLANTS,
v.
JAMES E. MARKHAM AS ALIEN PROPERTY CUSTODIAN
AND
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APPELLEES.

APPEAL FROM THE DISTRICT COURT OF THE UNITED STATES.

REPLY BRIEF FOR APPELLANTS.

The brief of defendant-appellee does not dispute that Chubb on behalf of Smith made a tapering polarizing film having an area of diminishing polarization; that he tested this film for its polarizing properties by means of an analyzer; that he embodied the film in a five-ply lamination which satisfied all of the structural requirements of the claim in issue; and that he also tested this five-ply lamination for its polarizing properties.

Appellee criticizes appellants' foregoing proofs of reduction to practice on the ground that the film and the lamination made therefrom were failures. The testimony in the case lends no support to this argument. Chubb describes the film in question as having an improved surface, and then describes the extent to which certain surface imperfections do exist in the sheet. Nothing whatsoever in this testimony indicates that these surface imperfections rendered the film inoperative. On the contrary, the evidence conclusively shows that they did not, for Chubb was sufficiently satisfied with the film to laminate it and with the laminations to try them as visors and as headlight screens. Chubb did this after testing the polarizing properties of both the film and the lamination. This leaves no basis whatsoever for the conclusion that the films made by Chubb were failures.

Appellee also attacks appellants' proofs of reduction to practice on the ground that the laminations were inadequately tested. In so doing, appellee's argument is based on the same erroneous premise which was made by the Court below. Appellee's position, in effect, is that for a reduction to practice of the invention here involved, Smith was required to successfully reduce to practice a headlight glare elimination system. Yet, the facts in the case clearly show that the lamination had conventional uses apart from any function which it could serve in a headlight glare elimination system, and obviously the practicability of the lamination for these conventional uses could be established without providing a commercially satisfactory headlight glare elimination system. For a reduction to practice, Smith had only to satisfy himself that he had made the structure required in the count in issue and that the feature of that structure which constituted the patentable improvement functioned properly. (See *Honda* v. *Brace,* 58 App. D. C. 24; 1928 C. D. 91; 24 Fed. Rep. 466; *Ryon* v. *Hathaway,* 56 App. D. C. 249; 1926 C. D. 167; 12 Fed. Rep. (2d) 190; and *Creveling* v. *Jepson,* 44 App. D. C. 445; 1916 C. D. 162.) Obviously, this was done by Chubb not only in the laboratory, but by using the lamination as a visor in a road test and determining that nothing adverse happened to it when so used.

SMITH'S DELAY IN FILING.

Appellee relies also on the so-called "unexplained delay" in Smith's filing of an application. While unexplained delay in filing may be a circumstance tending to indicate that there was no reduction to practice, once reduction to practice is established, as it has been here, this doctrine has no application.

Appellee takes the further position, however, that delay alone in filing, coupled with another's entry into the field, is sufficient to constitute an abandonment of an invention which has been reduced to practice, citing the doctrine of *Mason* v. *Hepburn,* 13 App. D. C. 86 (1898).

In *Lederer* v. *Walker,* 39 App. D. C. 122 (1912), also cited by appellee, the earlier doctrine of *Mason* v. *Hepburn, supra,* is carefully considered with respect to the very point urged by appellee and the Court finds no support therefor, stating unequivocally:

> "None of the cases cited support the doctrine that mere delay in applying for a patent, after actual reduction to practice, will necessarily subordinate the first inventor's right to one who, in the meantime, has applied for a patent for the same invention . . ."

The foregoing language also disposes of the further contention made by appellee that unexplained delay in filing is affirmative proof *per se* of abandonment.

The case of *In re Mower,* 15 App. D. C. 144 (1899), also cited by appellee in support of the latter point, is prior to *Lederer* v. *Walker, supra.* Moreover, *In re Mower* did not involve an unexplained delay but rather delay due to an express intent to conceal and suppress the invention, as is clearly borne out by the opinion:

> "On the contrary, the witholding of the application was due entirely and exclusively to a fixed and determined purpose on the part of the owner of the invention

> to keep it from public use, and to prevent his partners from obtaining any benefit therefrom, until the expiration of certain patents, and he could find it profitable to dispose of certain lasting machines that he had on hand."

There is no evidence in the case at bar to support any finding that appellants purposely concealed and suppressed the instant invention. At the time of the reduction to practice of the instant invention, appellants were concerned with the bigger problem of providing a commercially satisfactory headlight glare elimination system and the evidence establishes continued activity with laminations embodying the invention in issue up to and including 1938.

Of interest in connection with the foregoing holdings is the case of *Rolfe* v. *Hoffman,* 26 App. D. C. 336, wherein the following appears:

> "It is true that two years elapsed between his alleged reduction to practice and the filing of his application for patent, during which interval his rival entered the field and secured a patent. Such a period of delay, standing by itself, does not constitute an abandonment of his right to a patent based on priority of invention."

THE RIGHT OF SMITH TO RAISE THE QUESTION OF THE INOPERATIVENESS OF SAUER'S DISCLOSURE IN THIS COURT.

Appellee has taken the position that Smith is barred from questioning the operativeness of Sauer's disclosure because of a failure to make a motion challenging that disclosure in the Patent Office proceeding. It is true that the failure to make this motion in the Patent Office barred Smith's repeated efforts to raise at the final hearing in the Patent Office the question of the operativeness of Sauer's disclosure, but this constitutes no bar to this Court's consideration of the same question. Appellee's brief cites a number of cases in support of his position and in so doing makes no distinction between an action brought under R. S. 4915 and a proceeding under R. S. 4911. The former "is not a technical appeal from the Patent Office like that authorized in Section 4911 confined to the case as made in the record of that office, but it is based and heard upon all competent evidence adduced and upon the whole merits." *Butterworth* v. *United States ex rel Hoe,* 112 U. S. 50.

Each of the cases cited on page 24 of appellee's brief is a direct appeal from the Patent Office in which the function of the Court is "not that of exercising ordinary jurisdiction at law or in equity, but of taking a step in the statutory proceeding under the patent laws in aid of the Patent Office." *Federal Radio Commission* v. *General Electric Company et al.,* 281 U. S. 464. Determination of such appeals originally vested in this Court under Section 9 of the "Act to Establish a Court of Appeals for the District of Columbia and for Other Purposes" approved February 8, 1893 (Ch. 74, Sec. 9, 27 Stat. 436) was subsequently vested in the Court of Customs and Patent Appeals pursuant to the amendment of March 2, 1929, Ch. 488, Sec. 2, 45 Stat. 1476.

Geophysical Development Corporation et al., v. *Coe,* 78 App. D. C. 39, which appellee characterizes as being comparable to the case at bar, was a suit for an injunction to require the Commissioner to amend a decision he had made in connection with an interference pending in the Patent Office in which this Court held that the rules of the Commissioner, unless arbitrary, were controlling as to the Patent Office and its proceedings. A case involving the jurisdiction of the Patent Office over proceedings in the Patent Office is hardly comparable with one involving the extent to which Patent Office proceedings should control the action of this Court in an R. S. 4915 proceeding.

Appellee has urged that appellants' reliance on *Kollsman* v. *Carbonara,* 24 CCPA 1149, 88 F. (2d) 966 and *Creed et* *al.* v. *Potts,* 96 Fed. Rep. (2d) 317; 25 CCPA 1084; 1938 C. D. 498 is misplaced. These cases were cited in support of appellants' contention "that the question of operativeness in a contest of priority is ancillary to the question of priority." With respect to this point we quote from *Creed* v. *Potts, supra:*

> "However, in so far as such contention involves the question of whether appellee's patent and original application discloses the invention here involved, upon which patent appellee is entitled to reply for conception and reduction to practice of the invention, it is a matter directly involving the question of priority of invention. *Kollsman* v. *Carbonara,* 24 CCPA 1149, 88 F. (2d) 966."

If this suit is to be determined upon all of its merits, the question of the operativeness of the Sauer specification is properly before this tribunal and for reasons clearly indicated in appellants' main brief Sauer's specification does not entitle him to a constructive reduction to practice.

Respectfully submitted,

CECIL A. BEASLEY, Jr.,
American Security Building,
Washington, D. C.,
Counsel for Appellants.

Donald L. Brown,
Charles Mikulka,
Of Counsel.